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# Some Economic Aspects of RETAILING CHICKEN MEAT

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CALIFORNIA AGRICULTURAL  
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# HOW TO SELL MORE CHICKEN MEAT

in the Los Angeles retail market . . .  
and sell it more efficiently



This study indicates that there is room for improvement in the marketing of chicken at retail in the Los Angeles area. More chicken could be sold by making it easier for retailers to handle and consumers to buy, and giving both groups more confidence that they will get the quality they want. Marketing losses could be reduced by faster turnover and more careful handling.

## WHAT THE INDUSTRY AS A WHOLE COULD DO

- Establish clear and uniform descriptions of classes of chickens and educate consumers about the uses of each class
- Establish a uniform grading system, such as U. S. grades, for chicken at retail
- Encourage sales in convenient ready-to-cook forms and educate consumers about the relative values of such forms
- Publicize the relative cheapness of chicken as compared with other meat

## WHAT PRODUCERS COULD DO

- Give more of their chickens good finish and fleshing
- Take more pains to avoid bruises in loading coops



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## WHAT PROCESSORS COULD DO

- Handle chickens carefully to avoid abrasions
- Offer more chicken in ready-to-cook forms

## WHAT RETAILERS COULD DO

- Advertise chicken more often
- Display chicken more attractively and prominently
- Label all displays of chicken meat clearly and accurately both as to class and as to quality



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## THIS STUDY

is a contribution to the Western Poultry Research Marketing Project. The study was conducted by the Experiment Stations of the Western Region, cooperating with the Bureau of Agricultural Economics and the Production and Marketing Administration, United States Department of Agriculture. The research on which the report is based and the publication of the report were supported in part by funds provided by the Research and Marketing Act of 1946.

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# Some Economic Aspects of RETAILING CHICKEN MEAT

KENNETH D. NADEN · GEORGE A. JACKSON, JR.

## SUMMARY AND CONCLUSIONS

THIS STUDY is part of a broad investigation of efficiency in marketing of poultry and poultry products by the Western Regional Poultry Marketing Committee. The main purpose of this phase of the study was to form a comprehensive picture of the competition and economic efficiency in the retail marketing of chicken meat in the greater Los Angeles area, a deficiency market.

Data on prices, quality, volume of sales, and merchandising practices were collected every other week for a year beginning in November, 1949, from a sample of 64 retail food stores. The sample was so distributed among types and sizes of stores and rental areas as to be representative of all stores in the market. To obtain information on certain consumer reactions, controlled experiments were conducted in several selected stores.

**Kinds of Chicken Meat Offered.** About 96 to 98 per cent of all retail food stores in the market carried some form of chicken meat during the period of the study. Frozen, cut-up, branded chicken was available in nearly every store, but fresh dressed chicken was carried by only about 80 per cent of the stores that carried fresh meat. There appeared to be an opportunity to expand the number of outlets offering fresh chicken meat among the stores with fresh-meat departments. The main reasons given for not offering chicken meat were erratic consumer demand and inability to obtain the volume desired at a suitable price and quality.

### **Quality of Fresh Chicken Handled.**

A sample of about 23,000 fresh dressed chickens was graded at city processors by a licensed United States Department of Agriculture grader. Eighty-two per cent of the fryers, 85 per cent of the heavy hens, and 76 per cent of the light hens produced in the local area met specifications of U. S. grade A. Most of the remainder was of B quality. About half of the chickens of grades B and C were graded down for defects which producers control. Deficient fleshing and finish were the most prominent defects, and were commoner in hens than in fryers. The substantial increase in caponettes produced in the area in recent years has contributed to a general raising of the quality of fryers.

Grading of chickens in retail food stores was done by the authors, who had been trained by licensed graders. Here cut-up fryers were slightly higher in quality than dry-packed fryers, and these in turn higher than ice-packed fryers. In all classes except broilers and roasters, quality defects in retail stores were due primarily to processor handling. Of these defects, skin abrasions were most common.

About 10 to 15 per cent more dressed fryers and light hens rated U. S. grade B at retail than at wholesale, even though processors sell their lowest-quality chickens to outlets other than retail stores. Most of this deterioration occurs from the wholesale to the retail level.

Serious consideration could be given to quality problems at the farm, processor, and retail levels.

Service-conscious stores uniformly carried high-quality chickens. Although this type of store was most commonly found in the high-rental areas, all stores in this area did not carry higher-quality chicken than all stores in the other rental areas. There were, however, more U. S. grade A dry-packed fryers and heavy hens in the higher-rental areas.

**Retail Prices of Chicken Meat.** Retail chicken prices showed a wide variation: the range from the highest to the lowest price for any one class of chicken occasionally reached 30 cents. Usually two thirds of the prices were within 8 or 9 cents above or below the average. Reasons for the variation were differences in quality, in markup policy, in use of advertisements, and in buying prices. Price policies of stores were more closely associated with quality of chicken carried than with size and type of store. For the same quality, however, chain stores charged about 1 to 3 cents a pound less than independents for fresh chicken and about 2 to 5 cents less for frozen chickens. Among independent stores there was some tendency for larger stores to have lower prices, especially for frozen chicken. There was, however, a wide overlapping in prices among different sizes and types of stores.

Fryers generally had a lower price and markup than roasters at the retail level; thus producers of roasters received a lower premium over fryers than consumers paid. The differences in retail prices between heavy hens and light hens were the result of differences in supply as well as in quality.

When converted to an equivalent cost basis, retail prices for live, dressed, and cut-up forms of fresh chicken meat had quite similar ranges. However, the competition between these forms was determined more by such factors as habit and custom and ease of buying than by price.

Average retail prices for fryers and light hens showed a close relation with average wholesale prices.

**Retail Margins.** Retail margins for fresh chicken meat varied widely among classes and over time, even with the same size and type of store. Margins for frozen chicken also varied widely although buying prices were more stable. Retail margins were affected somewhat by the absolute level of prices and by quality, but primarily by the price policy of the individual store, especially by its advertising policy. Advertised items usually had a lower markup than nonadvertised items.

Margins varied slightly because of retailers' tendency to maintain certain "customary" prices, and their reluctance to change these when buying prices changed. Most retailers felt, furthermore, that among their clientele there was a "critical" price—a price above which sales dropped off sharply. When wholesale prices rose above a certain point for some stores, the retail margin was reduced because the retailer was reluctant to raise prices above the critical level.

**Quality-Price Relations.** Prices for fresh chicken in individual stores in the Los Angeles market were not a reliable guide for obtaining the quality desired unless the purchase was made in service-conscious stores. True, there was a fairly consistent association of average retail prices with quality—U. S. grade A chicken sold for 2 to 10 cents, usually around 4 cents, more than U. S. grade B. This was probably due largely to differences in prices paid by retailers. But there was considerable overlapping in prices for different grades. This overlapping was caused by (1) the absence of uniform quality standards at retail; (2) widely different price policies of retail stores; and (3) inability of many consumers to distinguish qualities. A uniform grading system should reduce the price spread within each grade and prevent mislabeling of quality. So far as

packers and processors have guaranteed the quality of certain brands of chicken meat, branding has proved a satisfactory way for some consumers to differentiate quality of products.

The significant level of competition at retail seemed to be the whole store, the whole complex of factors that caused shoppers to patronize one store rather than another. At the store level, competition has been keen. But having made a decision at this level, shoppers have seemed indifferent to even large differences in prices of individual commodities among stores. This explains why large variations in prices of chicken at retail have remained in effect indefinitely.

#### **Variations in Quantity of Chicken**

**Meat Sold.** The volume of total chicken sales had a high correlation with the gross sales of all departments of each store. However, the volume of sales of any one class or form of chicken was not closely related to gross sales in each store. There was a wide variety in the combination of forms and classes handled by different stores. The volume of sales varied widely

from store to store in any one week, and from week to week in any one store.

Of the factors studied, the one most consistently and definitely related to changes in volume of sales from week to week was advertising. Among the stores reporting above-average sales in any particular week, a higher percentage had advertised their displays that week than among stores reporting sales average or below; and the higher the relative sales, the higher the percentage of stores that had advertised chicken. On the average, however, 25 per cent of the advertisements did not result in an increase of sales.

Relative prices were next in importance. Relatively low prices were associated with increases in sales, but changes in sales did not seem to be closely associated with those in prices when the latter were average and above average. Advertising and prices were related: advertised displays of chicken were on the average priced lower than nonadvertised displays.

Prominence of displays appeared to be next in importance as a factor in



Above: Typical chicken and poultry display in a chain supermarket in Los Angeles.

changes in weekly volume of sales; but the influence of this factor dropped off rapidly in stores smaller than supermarkets; apparently only the larger stores used it effectively. Advertising and prominence were related somewhat.

The relation between appearance of chicken displays and changes in sales was small and inconclusive except in larger stores.

Quality of chicken was related to changes in sales in two ways: First, lower quality appeared with high sales because some stores cut prices for a sale at the expense of quality. Second, lower quality appeared with low sales because in some stores turnover was slow and considerable deterioration occurred before sale.

**Competition among Classes of Chicken Meat.** Ice-packed fryers were the product most closely competitive with dry-packed fryers. These two types of fryers were close substitutes for each other. The product next in competitiveness with dressed dry-packed fryers was fresh cut-up fryers. Changes in the sales of cut-up fryers were inversely related to sales of dressed fryers. Among the classes of fresh chicken meat, heavy and light hens showed the least competition with dressed fryers; in fact, sales of both types of hens showed a positive relation with sales of dressed fryers.

Under the circumstances of this study, frozen fryers were not closely competitive with fresh dressed fryers. Volume of sales of these two products showed no positive or negative relation with each other, even when sharp reductions in price occurred and advertising was used for one or the other product. Factors such as quality, convenience in buying, branding, packaging, and availability were more important than price differences in their influence on consumers' choice of fresh or frozen chicken meat. Competition was less direct because frozen fryers were considered a grocery rather than a meat item.

The wide range of labels used by retailers for a single class of chicken meat

was confusing, and some of the labels were misleading. Uniform and informative descriptive terms for chicken classes are greatly needed to improve the marketing of chicken meat.

### **Experiment in Grade Labeling.**

An experiment was conducted to test the short-run effects on sales of offering uniformly graded and labeled chicken meat. Four-week test and control periods were alternated for 4 months in two stores of each of two chains. The stores in each chain were interchanged in the roles of test and control stores. During test periods, United States Department of Agriculture graded fryers (variously labeled) were offered for sale. Customary practices were maintained during control periods.

The sales in the test periods averaged 32 per cent above those in the base periods. This is a measure of the increase in sales of dressed fryers due to the introduction of a uniform grading system.

During the first week of each test period, U. S. grade A fryers, so labeled, were displayed alone. During the other weeks of each test period, U. S. grade A and grade B fryers were displayed side by side, with price differentials. During the second week the grades were labeled "U. S. grade A" and "U. S. grade B," during the third week, "U. S. fancy" and "U. S. choice," and during the fourth week "U. S. fancy" and "U. S. good." The price differentials were based on a normal proportionate markup in the second and third weeks, were varied up or down from this in the fourth week.

Customers accepted U. S. grade B fryers so labeled without hesitation when offered in displays beside U. S. grade A fryers. No significant change in the proportions of each grade sold was noted when the labels were changed to "fancy" and "choice." But there was a significant drop in the proportion of grade B fryers sold when they were labeled "good," with grade A fryers labeled "fancy."

The tests on price differentials were too limited to permit conclusions. During 10

weeks when displays of U. S. grades A and B were maintained side by side at a 4-cent differential, the average sales of U. S. grade A were 56 per cent of the total, with a range from 42 to 87 per cent.

**Customer Discrimination of Quality.** In two stores of a third chain, experiments were conducted to test the ability of customers in retail stores to distinguish U. S. A quality and U. S. B quality chickens in a mixed display with no distinguishing labels on the different qualities. As in the previous experiment, the two stores were interchanged in the test and control roles at 4-week intervals, and the experiment was carried on for 4 months. The display was set up at the beginning of each day and was intended to last all day. No chickens were added unless most of the display was used. In the first quarter of each day, customers bought a higher proportion of grade A fryers than was present in the total display. During

the remainder of the day, when the quality differences between the grades gradually decreased, the proportion of grades A and B purchased did not differ greatly from that in the display. This indicates that some customers could recognize the quality characteristics of U. S. grade A fryers when the differences in quality were normal, but not when they were of a borderline nature.

**Customer Acceptance of Different Forms of Fryers.** A few short tests were run on customer acceptance of various forms of fryers—dry-packed versus ice-packed, dressed versus dressed and drawn or cut up. They indicated that acceptance of less familiar forms might be expected to vary greatly from store to store according to the type of clientele. They also showed clearly that consumers do not recognize what price for the ready-to-cook forms is equivalent to a given price for dressed forms.

## INTRODUCTION

The Poultry Technical Committee believes that the fundamental problem in poultry marketing in the western states is the level of efficiency. Level of efficiency is a question of degree—the degree to which equality of bargaining power between buyers and sellers exists; the amount and kinds of information which buyers and sellers have available to them; and the degree to which the existing capital equipment and plant capacity of any firm are utilized. In this light, level of efficiency is nearly synonymous with level of competition. The committee also believes that the primary objective of research in poultry marketing is to improve the marketing system, or to raise the level of efficiency and competition of the marketing system as it operates in a free-enterprise economy.

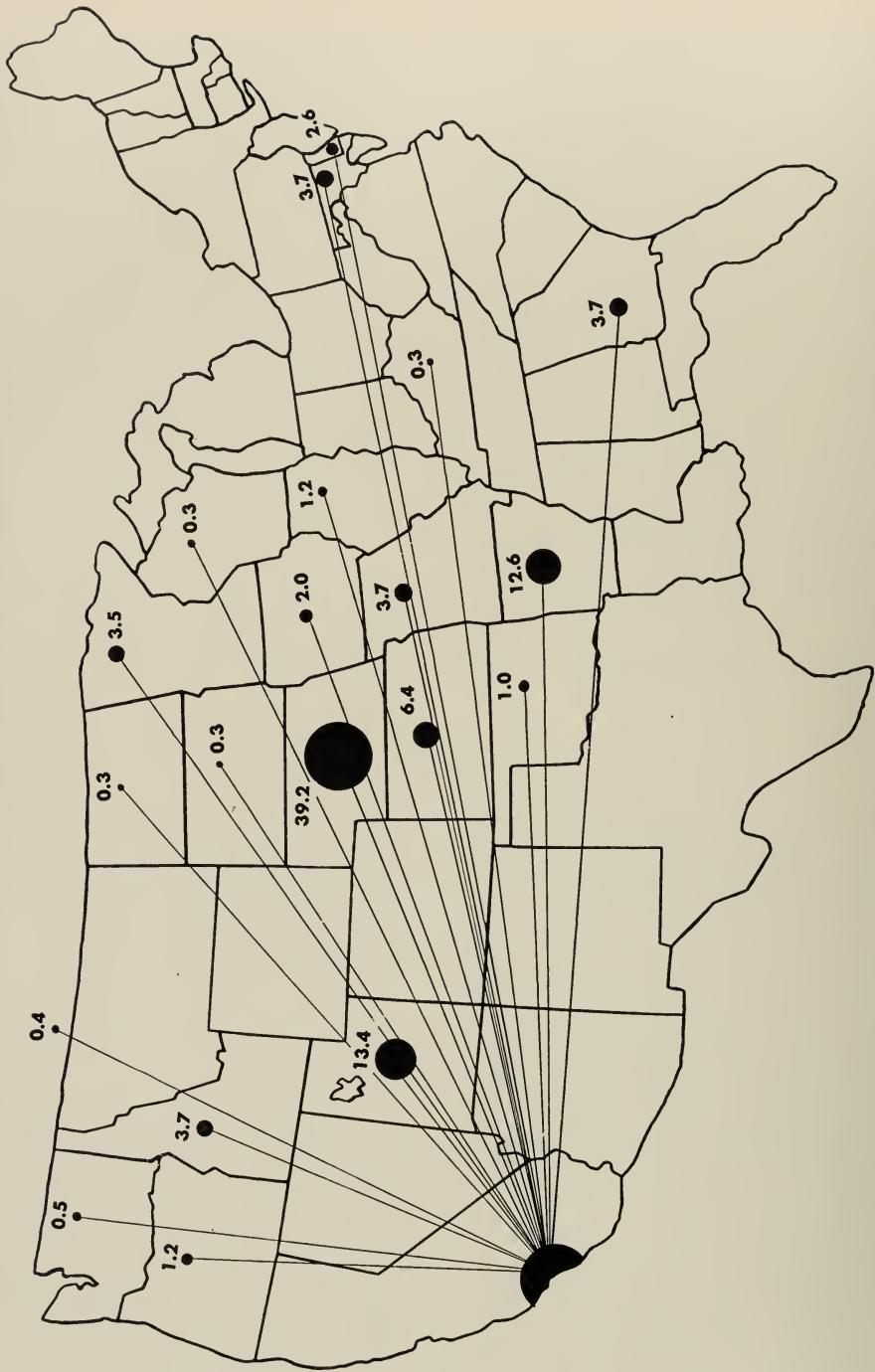
Although maximum marketing efficiency in the theoretical sense can never be realized, improvement can be made in

reducing waste and increasing satisfaction of producers, processors, retailers, and consumers when that increase serves to equalize the opportunities of the marketing system. This improvement must be made while maintaining the maximum freedom of choice of consumers and the maximum freedom of production of businessmen.

The committee became aware of this basic problem through the protests and complaints of poultry producers, particularly in California. Among other things, producers felt considerable insecurity in the market outlets for their chickens; felt they were not getting paid for legitimate quality differences; and did not have as much confidence in the accuracy of the Market News Service daily price reports as seemed desirable.

Investigation revealed that although other members of the chicken marketing chain had not made formal complaints,

**Figure 1. Per Cent of Total Los Angeles Dressed Chicken Receipts  
Originating from States Other than California, 1949**



Source of data: Based on table 2 of the reference given in footnote 1.

they felt a definite dissatisfaction with the operation of the marketing mechanism. Among other things, processors complained of the difficulty of obtaining a dependable supply of chickens; retailers mentioned the difficulty of obtaining consistent quality of chickens; all objected to parts of the Market News Service daily price reports.

These complaints gave an indication that the level of competition and efficiency in price making is far below that which could be observed for other livestock products, grains, and some fruits and vegetables. The complaints indicated that the low level of competition might be a result more of circumstances which no agency had attempted to control rather than of willful manipulation of the system for the benefit of particular individuals.

This publication covers those aspects of marketing efficiency influenced by retailing that are of unique regional interest. They have been investigated by the California Agricultural Experiment Station in coöperation with the Washington, Oregon, and Utah stations and the United States Department of Agriculture.

The Los Angeles market constitutes the largest consuming market on the West Coast. It is a deficit market for chicken and eggs. About 20 per cent of the chicken meat and 35 per cent of the eggs consumed there in 1949 came from the surplus production of other states. The range of sources of chicken meat for this market and the relative importance of each are shown in figure 1.

Several states of the region furnish the Los Angeles market, in addition to eggs and chicken meat, hatching eggs and baby chicks both for replacement purposes in laying flocks and for meat bird production. These additions to the supply of poultry products in Los Angeles form an important part of the competitive relation

between different markets in the region. Prices at central markets such as Los Angeles are reflected throughout the region. Conditions at retail which determine the competition between the local and the imported products are of economic significance to producers and processors in California and other states.

Two types of interproduct competition are of significance to the efficiency of operation of the Los Angeles chicken market. The first is the competition between classes, such as between fryers and hens. Each is used differently as a food in the home, yet the closeness between them may be different from the retail and the consumer's point of view. In this market the competition between meat-type and light-type hens is important. The second type of interproduct competition is that between fresh and frozen chicken. This competition comes from the fact that Los Angeles is a deficit market for chicken meat and receives a frozen, box-packed, ready-to-cook product from out-of-state. It has been estimated that 18 per cent of the chicken meat consumed in Los Angeles in 1949 was frozen chicken.<sup>1</sup> This product competes with fresh chicken; yet the characteristics of the two forms and the methods of merchandising each are quite different. Therefore, the pertinent issue is: How closely competitive are they, and what are the factors influencing consumer choice for one over the other?

Price-quality relations give an important clue to the level of competition existing for a product. The absence of a uniform grading system for chickens in the market is closely related to the dissatisfaction of producers and consumers of chicken.<sup>2</sup> In addition, wide differences in merchandising practices occur in selling chicken. An examination of these practices is necessary to determine the extent to which they contribute to effi-

<sup>1</sup> Naden, Kenneth D., and George A. Jackson, Jr. Chicken receipts and per-capita consumption, 1949. 9 p. Univ. California College of Agriculture, Los Angeles. 1950. (Processed.)

<sup>2</sup> Naden, Kenneth D. Poultry pricing in the Los Angeles area. California Agr. Exp. Sta. Gianini Foundation Mimeo. Rept. 101: 1-33. 1949.

cient marketing, to consumer satisfaction, and to high consumption of the product.

**Objectives.** In consideration of the above problems, the specific objectives of this study were:

1. To describe and analyze the prices and the quality of chicken meat sold in the Los Angeles market.

2. To examine merchandising practices such as advertising, display, and store policy, and their relation to prices charged and quantity sold.

3. To determine the relation between weekly changes in retail sales volume and other economic variables. Special attention was given to the competitive relation of fresh and frozen chicken.

4. To determine, by a controlled experiment, some of the effects of introducing a uniform grading system for fresh fryers at retail and consumers' ability to distinguish between different qualities.

**Source of Data.** Retail food stores account for about 55 per cent of the total chicken sales in this area (see footnote 1). Other retail outlets are specialized poultry stores, live chicken markets, and direct sales from producers. Attention was concentrated on the retail food store since it was the only outlet for both fresh and frozen chicken, and many more data were available concerning it than the others.

The data were collected from a sample of 64 retail food stores located in the Los Angeles market. The sample was so selected as to take into consideration the proportion of different sizes (in terms of gross sales), different types (chain and independent), and different rental areas in the city as a whole; variability in price within each size and type of store was also considered.<sup>3</sup> The distribution of the stores by size and type and by rental area is shown in tables 1 and 2.

<sup>3</sup> For a more technical and detailed account of the sample design, sampling procedure, the comparison of proportionate with optimum sampling, and the problems faced in designing the questionnaire, see: Naden, Kenneth D., and George A. Jackson, Jr. Techniques and methods used in Western Regional Poultry Project WM-7. Retailing chickens in the Los Angeles Area. Western Farm Econ. Assoc. Proc. 1950: 69-83. 1950.

**Table 1. Proportionate Distribution of Retail Food Store Sales by Size and Type of Store in Three Rental Areas**  
Los Angeles, 1949

Size and type of store	Rental area			
	Upper	Middle	Lower	All areas
Supermarket	per cent	per cent	per cent	per cent
Chain.....	21.4	16.7	8.9	14.8
Independent.....	20.5	18.7	14.7	17.6
A size				
Chain.....	15.2	11.2	12.0	12.6
Independent.....	23.4	25.5	21.4	23.6
B size.....	12.4	16.7	19.6	16.8
C size.....	7.1	11.2	23.4	14.6
Total.....	100.0	100.0	100.0	100.0

Source of data: Calculated from "Grocery store route list" of the Los Angeles Times merchandising service.

**Table 2. Proportionate Distribution of Retail Food Store Sales by Rental Area for Each Size and Type of Store**  
Los Angeles, 1949

Rental area	Size and type of store						
	Super-market chain	Super-market independent	A-size chain	A-size independent	B size	C size	All stores
Upper.....	per cent 27.3	per cent 22.5	per cent 24.3	per cent 19.1	per cent 14.3	per cent 9.5	per cent 19.4
Middle.....	54.5	49.1	42.8	50.0	45.9	35.9	46.5
Lower.....	18.2	28.4	32.9	30.9	39.8	54.6	34.1
Total.....	100.0	100.0	100.0	100.0	100.0	100.0	100.0

Source of data: Same as for table 1.

The grocery store lists from which the sample stores were selected were furnished by the research departments of the *Los Angeles Times* and the *Los Angeles Examiner*. These lists classified stores by location, by types (chain<sup>4</sup> or independent), and by size. The newspaper lists did not give gross sales of each store but placed them in a relative size classification which was about the same position occupied by each in previous OPA price lists. These size classifications were as follows:

Supermarkets—\$500,000 and above estimated gross sales in 1949  
A size—\$250,000 to \$500,000 estimated gross sales in 1949  
B size—\$60,000 to \$250,000 estimated gross sales in 1949  
C size—Below \$60,000 estimated gross sales in 1949

At the time the sample was selected, the exact dollar sales of each store in the sample were not known. However, the distribution of the sample among the various size classifications was dependent upon the assumption that chicken meat sales were proportionate to total sales of all departments. During the conduct of the study gross meat sales and gross

store sales for the calendar year 1950 were obtained for each store in the sample. The relation of total chicken meat sales with total store sales is shown in figure 2. The adjusted coefficient of simple correlation between these two variables is 0.902. A correlation coefficient of this size is highly significant.

The geographic area which the study included together with the size and type classification and rental-area location of each sample store are shown in figure 3.

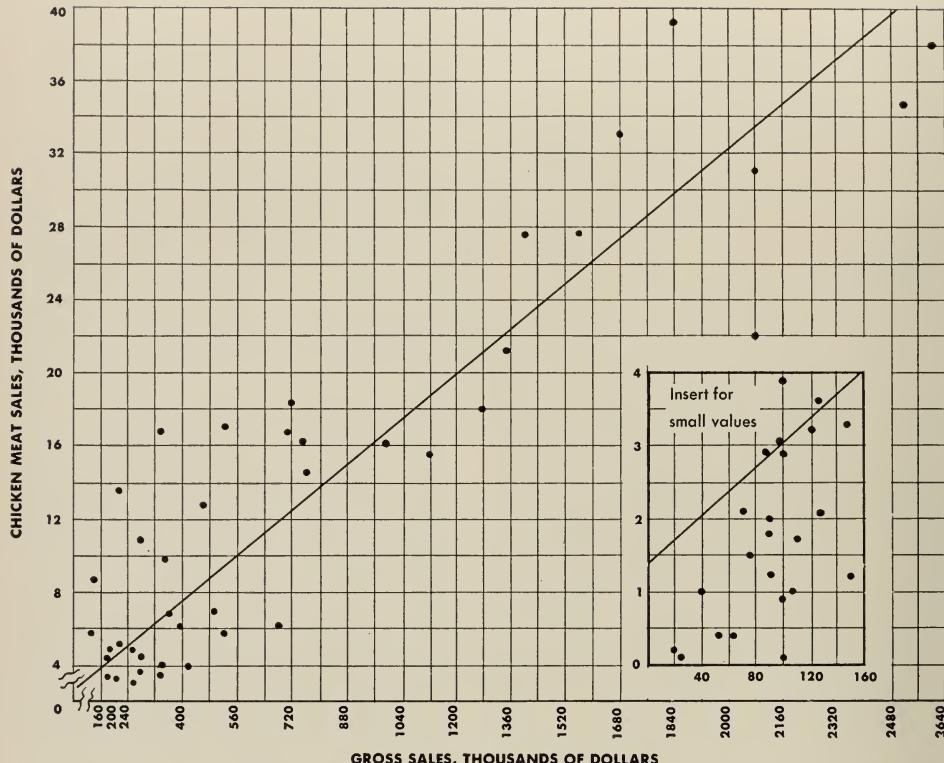
The special area for this study included all of Los Angeles City and most of the 34 districts and incorporated cities in Los Angeles County. Santa Monica, Van Nuys, Pasadena, Southgate, and Long Beach were included and form roughly the outer boundary of the area. This area included about 3.8 million people in January, 1950.

Average rental paid in an area is considered a reliable guide to average income received by the residents of that area. There are, of course, many exceptions to this generality. Average monthly rentals paid in the three areas in 1940 were as follows: Upper division, \$60 and up; medium division, \$30 to \$60; lower division, below \$30.

<sup>4</sup> A chain store is defined here as a group of five or more retail outlets under common ownership and management.

**Figure 2. Relation between Gross Sales, All Departments, and Total Chicken Sales**

Sample retail food stores, Los Angeles market, 1950

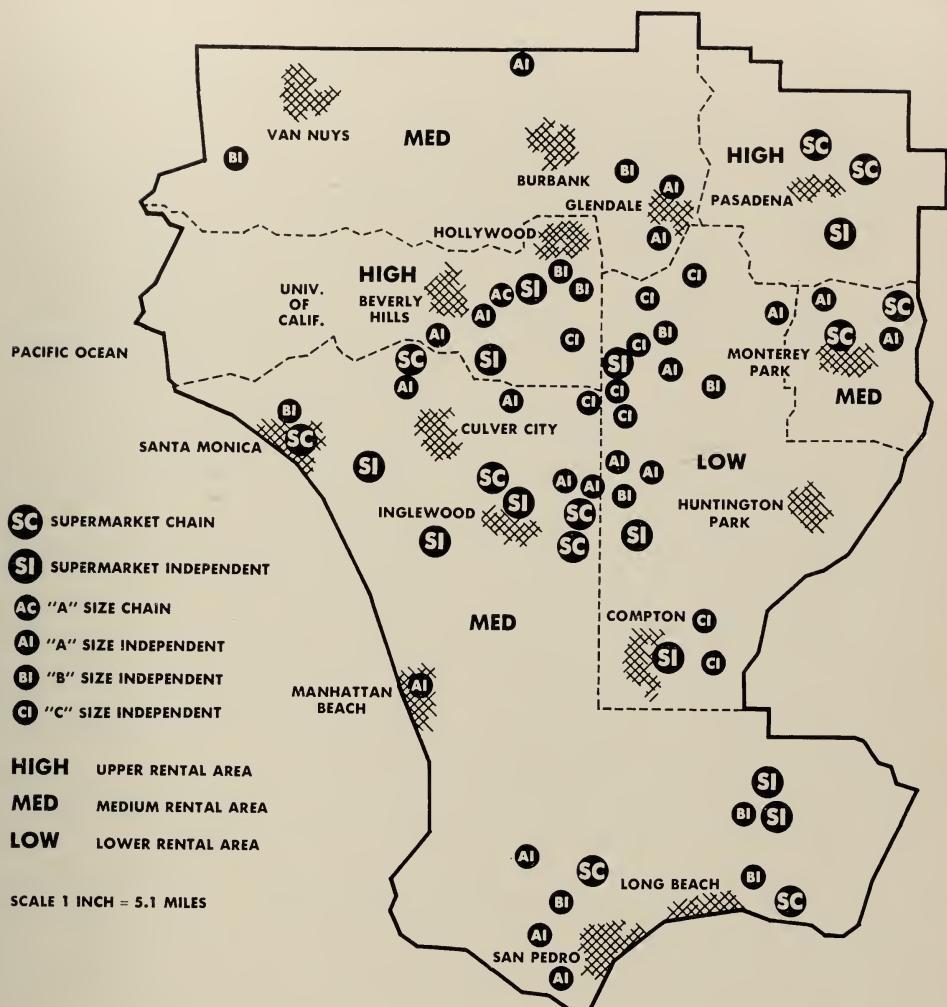


The distribution of stores among sizes, types, and rental areas was as shown in the tabulation below.

The data for the study were collected through personal visits by the authors to each store every other week for the one-

Size and type	Number in rental areas	Number in sample
Supermarket chain .....	{ Upper      52 Middle    97 Lower    37	3 6 2
A size chain .....	City      244	1
Supermarket independent .....		
	{ Upper      50 Middle    109 Lower    64	3 6 3
A size independent .....		
B size (all independent) .....	{ Upper      91 Middle    238 Lower    147	4 9 6
C size (all independent) .....	{ Upper      121 Middle    389 Lower    337	2 5 4
	{ Upper      261 Middle    984 Lower    1,498	1 3 6
		Total    64

Figure 3. Map of the Los Angeles Area, with Location of Sample Stores



Source of data: Census of Housing, 1940, as shown on the Los Angeles Time Sample Control Map of Major Economic Areas, 1948. New residential districts built since 1940 have changed the boundaries somewhat.

year period November, 1949, to November, 1950. The visits were timed so as to obtain an accurate picture of the situation existing for pricing, quality, volume, and merchandising practices for chickens.

**Kinds of Chicken Meat Sold.** All 64 stores of the original sample selected carried some kind of chicken meat. This indicates that a high percentage of food stores in the area offer some kind of

chicken product to their customers. This is in contrast to the situation described in Philadelphia in 1948 where only approximately 52 per cent of the retail food stores carried fryers of any kind.<sup>5</sup>

There was a direct relation between the size of store and the variety of kinds and forms of chicken meat sold. Some C size stores carried only one brand of frozen fryer or hen or both. Some super-

<sup>5</sup> McAllister, W. T., and R. O. Bausman. The retail marketing of frying chickens in Philadelphia. Delaware Agr. Exp. Sta. Bul. 275: 7. 1948.

markets carried as many as 5 kinds of fresh fryers or hens or both, and 1 or more brands of chicken parts. The forms and classes of chickens carried by the sample stores during a typical week of the study are shown in table 3. Stores vary the kind of chicken handled but usually keep at least a minimum number of items every week to insure dependability of supply to their regular customers. Special price inducements made by processors and distributors on a particular item will often result in its being carried in more stores than it would otherwise.

There appears to be considerable opportunity to expand the outlets for chicken in retail food stores in Los Angeles. It is noted, for example, that the A-size chain stores, of which there are 244 in the city, did not carry any fresh chickens in July, 1950. This is in contrast to the A-size independents (476 in area), which carried a wide variety of fresh chickens. The problem of inducing smaller (B and C size) stores to carry more chicken is one of convincing them that this item offers more net return to them than some other. All meat counter space in retail stores is "demanded" by

many items, and the introduction of one more must be made at the expense of one already there. In addition, many retailers resist carrying chicken because they feel that it requires more than average counter labor. This is true of the dressed form but not of the cut-up or drawn forms. Many of the smaller stores find that they can carry cut-up chicken and thus increase their returns without greatly increasing the labor required. There has been some opposition from retailers to carrying chicken meat because they have felt that its sale is more irregular and uncertain and that it deteriorates faster than other meats.

**Channels for Chicken Meat.** Fresh chicken meat is carried from farms to retail stores by agencies which are specialists in handling that product. Country buyers of chickens do not buy other poultry products, and chickens are not processed in plants which slaughter other livestock. Apparently the characteristics of the product are such that it requires the services of specialized agencies and cannot be combined with other meats, eggs, or fish.

This is in contrast to the method of handling frozen chickens. This product

#### DEFINITIONS OF CHICKEN CLASSES

Broilers: 1 $\frac{3}{4}$ -2 $\frac{1}{4}$ pounds	All young, soft-boned chickens of either sex
Fryers: 2 $\frac{1}{4}$ -4 pounds	
Roasters: Over 4 pounds	

Heavy-type hens: mature female chickens of all breeds except Leghorns

Light-type hens: mature female chickens of all weights of the Leghorn breed only

#### DEFINITIONS OF CHICKEN FORMS

**Fresh:** chicken that has not been preserved by canning or freezing

**Ice-packed:** fresh chicken that has been chilled and kept refrigerated by direct contact with chopped ice

**Dry-packed:** fresh chicken that has been chilled and kept refrigerated by cold air only

**Dressed:** chicken that has been killed, bled, and picked

**Drawn:** dressed chicken that has also had the head, shanks, pin feathers, and viscera removed

**Cut-up:** drawn chicken that has been segmented into parts such as thigh, breast, and wings

**Ready-to-cook:** any lot of drawn or cut-up chicken

**Table 3. Forms and Classes of Chicken Meat Handled in  
Sample Retail Food Stores**  
Los Angeles market, week of July 24-30, 1950

Product	Number of displays in:					
	11 Chain super- markets	12 Inde- pendent markets	1 A-size chain	19 A-size inde- pendents	11 B-size inde- pendents	10 C-size inde- pendents
<b>FRESH</b>						
Dry-packed						
Dressed:						
Fryers.....	4	5	..	13	6	3
Roasters.....	1	1	..	5	1	..
Heavy hens.....	6	7	..	8	6	2
Light hens.....	3	2	..	7	1	1
Broilers.....	..	1	..	2	..	..
Capons.....	1	..	..	..	..	..
Drawn:						
Fryers.....	1	1	..	1	..	..
Roasters.....	..	1	..	1	..	..
Heavy hens.....	1	3	..	3	..	2
Cut-up:						
Fryers.....	7	5	..	5	2	2
Hens.....	..	1	..	1	1	..
Ice-packed						
Dressed						
Fryers.....	5	1	..	..	..	..
<b>Subtotal, fresh.....</b>	<b>29</b>	<b>28</b>	<b>0</b>	<b>46</b>	<b>18</b>	<b>10</b>
<b>FROZEN</b>						
Cut-up:						
Fryers.....	20	28	1	29	12	7
Roasters.....	1	2	1	3	..	..
Hens.....	5	6	1	12	..	2
Broilers.....	..	1	..	1	..	..
Chicken parts.....	9	12	..	29	5	3
<b>Subtotal, frozen.....</b>	<b>35</b>	<b>49</b>	<b>3</b>	<b>74</b>	<b>17</b>	<b>12</b>
<b>GRAND TOTAL.....</b>	<b>64</b>	<b>77</b>	<b>3</b>	<b>120</b>	<b>35</b>	<b>22</b>

has characteristics similar to those of many frozen foods and hence becomes one of many items handled by frozen food and general grocery distributors. Fresh and frozen forms are handled in different parts of the store, frequently by different managers or owners. This and other fac-

tors to be discussed later tend to separate the two forms and reduce the competition between them.

Retailers in the Los Angeles area typically buy fresh dressed chicken from a city or country processor, the latter occasionally being also a producer. Delivery

is ordinarily twice weekly but ranges from once a week in stores that handle chicken only on week ends to daily in high-volume stores close to a processor. Special deliveries to stores occur frequently. This reflects the reluctance of retailers to stock up to meet all sales possibilities and the competition among dealers to retain the good will of their customers. This type of arrangement probably raises delivery costs above what they would be with other products.

Retailers typically buy frozen chicken from a specialized frozen-food distributor. The distributor may or may not also

carry all dry groceries and canned goods. The distributor in turn obtains frozen chicken in carload lots direct from the processing plants in distant areas. The transaction may be handled by a local representative of the distant processor. Chain stores may receive carload lots at their warehouses direct from the distant processor and then distribute to the individual stores. Delivery of frozen chicken to retail stores occurs about once a week, according to store capacity and volume of sales. Some frozen chicken is distributed by dairy-products agencies, usually to smaller stores.

## QUALITY OF CHICKEN MEAT IN THE LOS ANGELES MARKET

Price and quality of chickens are the two most important characteristics considered by buyers of this product. Although the quality or grade of a product is an inseparable part of its price, quality can be considered separately and it is useful to do so here. Investigations were made in this study to determine (1) the absolute level of quality of fresh chickens found at processors and at retailers in Los Angeles, (2) the reasons for grading some chickens as grade B and C, and (3) the responsibility among producers, processors, and retailers, for the downgrading that occurred.

Quality of product is influential in determining producer, processor, retailer, and consumer satisfaction with the marketing system for chickens. Many producers believe that chicken quality is not properly recognized by country buyers. Processors feel that lack of uniform quality makes selling chickens more difficult. Retailers feel that the handler of high-quality chicken cannot compete with the handler of low quality when no uniform standards are used to prevent misrepresentation. Consumers often cannot distinguish between different qualities of chicken at retail. Investigation has revealed that the per-capita consumption

of chicken meat in Los Angeles in 1949 was only about two thirds that of the national level (see footnote 1, p. 11). Quality of the product probably has a significant influence on this fact. Knowledge of the relative quality between classes and between forms (such as dressed, cut-up) and of the relative quality at the processor and retailer level has an important bearing on market efficiency.

A pertinent question relating to the above topics is: What is the quality of chickens produced and sold fresh in the Los Angeles area? This question, and others related to it, are answered below.

**Quality at the Processor Level.** During the first six months of 1950 a sample of about 23,000 chickens received and dressed by city processors in Los Angeles was graded by a licensed federal grader in accordance with United States Department of Agriculture quality standards. The standards used were uniform for all breeds and classes graded. Each chicken was graded and the reasons for all downgrades were recorded. These chickens were typical of those received by city processors during this period. City processors represent the most important type of handler of chickens in the local

**Table 4. Quality of Fresh Dressed Chickens, by Classes,  
Graded at City Processors**

Los Angeles market, January-June, 1950

Class	Chickens graded	Proportion meeting U.S.D.A. specifications for:			
		A quality	B quality	C quality	No grade
Broiler.....	number 4,954	per cent 77	per cent 20	per cent 2	per cent 1
Fryer.....	11,577	82	15	2	1
Roaster.....	1,191	87	12	1	..
Heavy hens.....	3,327	85	14	1	..
Light hens.....	1,825	78	20	2	..

marketing system. For this reason chickens received by other handlers, such as live-chicken retail dealers and receivers of fresh chickens from country processing plants, as well as those sold direct from producers to consumers and retail butchers, although important in total quantity, were not included in this sample. All chicken carcasses in the sample were graded in the dressing room or in the cooler shortly after picking.

The number and proportion of each class meeting United States Department of Agriculture quality standards for grades A, B, and C are shown in table 4.

The following conclusions can be drawn from the data presented in table 4:

1. Differences in quality between classes, while not large, were significant and have to be considered in marketing programs. It is to be expected that the proportion of broilers, fryers, and roasters meeting A-quality standards will increase in the order listed. The differences between broilers, fryers, and roasters were primarily related to age and weight; and fleshing and finish usually increase with age and weight.

2. The average quality of light hens

was slightly lower than that of heavy hens. High egg laying reduces the fleshing and fat accumulated on light hens as compared with heavy hens. This difference in average quality was probably one of the causes for the higher price obtained for heavy hens in this market.

3. A sizable quantity of the lower-quality chickens was produced which must be sold in competition with the higher quality. Presence of this lower quality creates a problem in consumer satisfaction since consumers are often unable to distinguish between different qualities and thereby to get the "best buy."

The proportion of chickens in each class which are of B and C quality will be higher than shown here by the time consumers buy them. This is because of the quality deterioration which occurs after dressing (during cooling, transportation, and retailing).

**Quality at the Retail Level.** To check on deterioration from the processor to the retail level, data on the grade of the fresh chickens on display in the sample retail stores are presented.<sup>6</sup> This grading was done by the authors who,

<sup>6</sup> The small number of broilers and roasters observed and graded at retail as compared with wholesale is owing primarily to the fact that these classes are channeled to a large extent through other outlets, such as restaurants and institutions. This number, however, includes all broilers and roasters displayed in sample stores during interviews and should be indicative of the influence and quality of these classes in retail food stores.

**Table 5. Quality of Fresh Dressed Chickens, by Classes, Displayed in Retail Food Store Sample**  
 Los Angeles market, January-June, 1950

Class	Displays	Carcasses in displays	Proportion of carcasses meeting U.S.D.A. specifications for:		
			A quality	B quality	C quality
Broiler.....	34	178	73	20	7
Fryer (dry-packed).....	394	2,490	72	27	1
Fryer (ice-packed).....	111	1,288	61	38	1
Fryer (cut-up).....	274	1,925	82	18	0
Roaster.....	116	596	87	13	0
Heavy hen.....	404	2,303	86	14	0
Light hen.....	219	1,785	61	37	2

although not licensed graders, have had considerable training and experience in chicken grading.

The proportion of each class of chickens meeting United States Department of Agriculture quality standard for grades A, B, and C is shown in table 5. All the chickens represented in this table came from the southern California area except some of the ice-packed fryers which originated in central and coastal regions of the state.

Table 5 reveals the following significant features:

1. Except for broilers, an insignificant proportion of the chickens offered at retail is of C quality. Deficient fleshing and finish are the major reasons for the more severe downgrading of broilers. They, however, are not a large item in the retail chicken meat business. Most processors sort out C-quality chickens and sell them to outlets other than retail stores.

2. Cut-up fryers appear as higher quality than dressed fryers. This occurs mainly because the cut-up fryers are sold in cellophane packages in self-service meat counters and are subject to closer scrutiny and criticism by consumers. Meat sold in the self-service style has to have greater emphasis placed on appearance for consumer appeal than that sold

in butcher-counter sales. Most merchants feel that the self-service meat counter must carry higher-than-average quality of product. Another possible reason is that some defects are less noticeable on cut-up birds.

3. Ice-packed fryers are shown as being of somewhat lower quality than dry-packed fryers. The reasons are: (1) many retailers do not merchandise the ice-packed product as the processor recommends (that is, kept fully covered with chopped ice during the entire period in the store) so that discolorations and abrasions show up more rapidly; (2) in general, ice-packed fryers were not as clean (free from pin and vestigial feathers) and not as well fleshed and finished as were dry-packed fryers.

The difference in quality for dry-packed fryers and light hens between the wholesale and the retail level is indicative of the loss in quality occurring from one handler to another. These two classes make up the bulk of all fresh chickens sold and are the most frequent "leaders" in advertising and merchandising operations. As a result the bulk of processors' receipts go to retail stores and the chickens of these classes represented in table 5 are typical of those represented in table 4.

On the other hand, there was slight or no deterioration in quality from wholesale to retail for broilers, roasters, and heavy hens. This is owing primarily to the fact that the chickens in these classes graded at wholesale for this study were not exactly comparable to those graded at retail because of the segregation of qualities at wholesale. These classes go to a more selective trade and to types of stores where quality is of more importance than price. In this segregation by the processor some of the lower quality may be sold to other outlets, such as lower-price restaurants and institutions.

**Downgrade of Chickens at the Processor and Retail Levels.** The conditions responsible for grading some of the chickens as B or C quality have been recorded. This record permits producers, processors, and retailers to determine their respective responsibilities for the presence of lower-quality chickens. They can use this information to improve the quality of chickens produced and sold.

The causes<sup>6</sup> for the lower grades of those chickens in table 4 which were

graded B and C quality are shown in table 6.

The different causes for the lower grades of chickens were divided mainly into two groups—those which are the responsibility of the producer and those which are the responsibility of the processor. Most persons agree that deficient fleshing and finish and presence of deformities are factors which producers control. On the other hand, feed in crop, abrasions, and poor bleeding are considered to be factors controlled by processors. Responsibility for bruises cannot be definitely assigned.

More than half of the chickens in this sample that fall into B and C categories received the lower grade because of causes which producers control. Of all the causes for lower grades, deficient fleshing and finish were by far the most prominent. These suggest that more care in feeding and time of marketing might reduce the percentage of chickens downgraded because of deficient fleshing and finish. However, the marketing of young chickens which lack proper fleshing and

**Table 6. Classification of B and C Qualities of Fresh Dressed Chickens by Cause of Lower Grade**  
Graded at city processors, Los Angeles market, January–June, 1950

Quality and class of chicken	Chickens graded	Production defects		Processing defects			Bruise (undetermined responsibility)
		Deficient fleshing and finish	Deformed	Feed in crop	Abrasions	Pin feathers	
	number	per cent	per cent	per cent	per cent	per cent	per cent
<b>B quality:</b>							
Broiler.....	534	55	3	20	6	6	10
Fryer.....	776	44	9	19	9	5	14
Roaster.....	73	51	4	8	16	6	15
Heavy hen.....	221	48	22	6	7	1	16
Light hen.....	244	66	14	6	5	1	8
<b>C quality:</b>							
Broiler.....	121	80	3	0	4	2	11
Fryer.....	249	50	6	8	10	12	14
Roaster.....	12	42	0	0	16	17	25
Heavy hen.....	43	63	19	0	0	7	11
Light hen.....	33	64	3	0	0	21	12

finish may be owing to the demands by buyers for small chickens, with little emphasis on quality. The poor fleshing and finish of broilers was also related to the fact that most of them were Leghorn cockerels, which would not mature into meat chickens. The high proportion of deformities in hens is understandable since they have a longer life than other classes and are subject to "occupational hazards" which are unavoidable. Bruises are usually caused by crowded conditions or rough handling in loading in and out of coops.

Of the different causes for failure to rate grade A which were the processors' responsibility, feed in crop was the most important. This resulted from the fact that all these chickens were graded immediately after being picked. Many chickens have feed before them continuously before being killed. Feed in crop is a defect which can be corrected before the birds are sold, and a large proportion of such downgrades are so corrected.

In determining the quality of chickens at retail, it has been possible to note how the addition of retailing defects changes the relative responsibility of each handler

in the channel. Although in a comparable sample all the defects present in chickens when graded at wholesale are also present when graded at retail, the addition of other defects owing to retailer's handling and the development of defects caused by processing, but which appear only after a time, change the proportions of defects resulting from any one handler.

When considered at retail, processing defects are greater than any other kinds of defects for all classes except broilers and roasters (table 7). For broilers the high proportion of birds having defective fleshing and finish (table 6) still holds at retail. For roasters nearly all the defects appear after the birds leave the processor.

The high proportion of processor defects at retail is in contrast to the grading at wholesale where defects caused by producer handling were more evident. The primary reason for this is that skin abrasions not apparent at wholesale appear quickly at retail from changes in temperature and humidity during transportation and display. About 40 per cent more ice-packed fryers than dry-packed fryers were of B quality (table 5). It can be

**Table 7. Classification of Reasons for Lower Grade of Chickens in Grade B Displays in Retail Food Store Sample**  
Los Angeles market, January-June, 1950

Class	Grade-B displays	Carcasses in grade-B display	Reasons for down-grade <sup>†</sup>	Proportionate causes for downgrade			
				Production defects	Processing defects	Retailing defects	Total
Broilers.....	5	35*	44	67	17	16	100
Fryers, dry-packed...	79	745	880	28	61	11	100
Fryers, ice-packed...	53	628	744	31	60	9	100
Fryers, cut-up.....	23	259	366	11	63	26	100
Roasters.....	7	341	49	0	29	71	100
Heavy hens.....	26	159	162	6	55	39	100
Light hens.....	86	849	1,055	28	39	33	100

\* It should be noted that the number of broiler and roaster carcasses is small because the B-quality carcasses represent a smaller proportion of total carcasses graded than most other classes.

† Number of reasons exceeds the number of carcasses because some carcasses had 2 defects.

seen in table 7, however, that of the fryers of both types that were of B quality, there was no appreciable difference in the reasons for downgrade among handlers.

No analysis of the reasons for the lower grade of the chickens graded C quality at retail is included in table 7 because the number was negligible.

Although producers are here assigned the responsibility for downgrading caused by deficient fleshing and finish, they feel that at least two types of circumstances outside their control can cause this defect. The first is a time of acute shortage of fryers of the desired age and weight. When this occurs sharper competition among country buyers immediately becomes evident. Country buyers not only pay higher prices but urge producers to sell birds which are not yet matured to a desirable state of flesh and finish. If producers fear that prices will drop shortly or if they wish to get or remain in favor with the country buyer they may feel coerced to sell ahead of the most desirable time.

The practice of selling whole flocks when the majority of birds have reached a desired weight also results in including some unfinished birds. This is because there is some variability in weight and vigor of birds within a flock. Producers may feel that offering of poorly fleshed and finished birds from this source is something beyond their control.

Another circumstance which producers are concerned about is the desire of processors and retailers for a small-sized bird. A small chicken costs a customer less than a large one. The optimum size from the viewpoint of the retailer and consumer is not known and probably differs in each area. One study reports strong consumer resistance to fryers weighing over  $2\frac{1}{2}$  pounds, cut-up weight.<sup>7</sup> As chicken weight increases, quality usually increases both through

an increase in the proportion of edible weight to total weight, and through an improvement in finish. However, if retailers are convinced that consumers are, on the average, more conscious of total cost than of quality, then they will demand chickens of smaller size, regardless of the lower quality which results and discount those of larger size. The total cost to the customer of a "package" of meat (the size typically offered them) and how far this package will go in satisfying the family appetites and needs may frequently be of more importance than price per pound or than quality of product.

Before quality improvement can be effected producers and handlers need to know the cause and source of low-quality chickens and then consider ways of reducing their number. Many of these ways involve additional cost of operation, such as more labor or longer time needed to load in coops. Whether the steps are taken depends on whether the higher income received from the higher-quality product equals, exceeds, or falls below the higher cost of producing it. Marketing chickens in the absence of a uniform grading system as at present makes it difficult to determine whether quality improvement would pay an individual producer or processor more income. Many persons in the industry feel, however, that an improvement in quality and uniformity of any food product creates consumer good will and makes its merchandising easier.

#### **Quality by Size and Type of Store.**

The proportion in which the grades of each class of chicken meat appeared in the various sizes of retail stores is shown in table 8. There is a strong indication that the proportion of U. S. grade A dry-packed fryers (the largest class) was larger in the small stores than in the larger stores. The relation that existed between quality of ice-packed fryers and size of store is not clear. Heavy hens appeared to be uniformly of high quality

<sup>7</sup> Baum, E. L., and H. C. Walkup. A further comment on profit maximization in fryer production. *Jour. Farm Econ.* 33: 260. 1951.

**Table 8. Quality of Fresh-Chicken Displays by Class in Different Sizes and Types of Retail Food Stores**  
Los Angeles market, selected weeks, 1950

Class of chicken	Supermarket chain		Supermarket independent		A size		B size		C size	
	U. S. grade A	U. S. grade B	U. S. grade A	U. S. grade B	U. S. grade A	U. S. grade B	U. S. grade A	U. S. grade B	U. S. grade A	U. S. grade B
Dry-packed fryers.....	79	21	72	28	84	16	97	3	93	7
Ice-packed fryers.....	39	61	67	33	0	100	100	0	0	0
Heavy hens.....	94	6	91	9	87	13	96	4	100	0
Light hens.....	50	50	56	44	46	54	80	20	60	40

in all sizes of stores. Light hens showed a slight trend toward higher quality in the smaller-sized stores.

The primary reason why smaller stores have higher-quality fryers than supermarkets is that more of their customers are repeat customers whom the manager or owner knows personally. As a result, there is more incentive to carry a product that satisfies. The larger stores are more price-conscious. In the supermarkets the customer-store relation is more impersonal and volume of sales is the aspect of primary emphasis.

**Quality in Different Rental Areas.** The proportion of U. S. grade A and B chickens appearing in the three rental areas is shown in table 9. There is an

increase in the occurrence of U. S. grade A among dry-packed fryers and heavy hens as the rental areas change from low to high. For ice-packed fryers and light hens, however, the low rental areas have a higher-quality product than the high-rental areas.

The main reason for this association is because of the different price policies of some of the stores in the different rental areas. There is a higher concentration of service-conscious stores in the high rental area than in the low. In these stores there is a demand for a dry-packed fryer rather than an ice-packed fryer and a demand for heavy hens which carry more meat than light hens. In the lower rental areas ice-packed fryers and light

**Table 9. Quality of Fresh Chicken Displays by Class in Different Rental Areas**  
Los Angeles market, selected weeks, 1950

Class of chicken	Low rental area		Medium rental area		High rental area	
	U. S. grade A	U. S. grade B	U. S. grade A	U. S. grade B	U. S. grade A	U. S. grade B
Dry-packed fryers.....	per cent	per cent	per cent	per cent	per cent	per cent
Dry-packed fryers.....	76	24	81	19	86	14
Ice-packed fryers.....	71	29	43	57	0	100
Heavy hens.....	89	11	94	6	100	0
Light hens.....	61	39	64	36	38	62

hens are more generally carried because of the price advantage that they offer.

**The Caponette and Chicken Quality.** The practice of producing caponettes is a relatively new development which has received considerable stimulus in the Los Angeles market area. One of the probable effects of this development is to raise the general average of quality of fresh fryers on the local market. Consumers have shown willingness to pay more for the caponette than for the regular fryer, and processors and country buyers have been paying a small premium to producers for this type of fryer.

A caponette is a fryer treated with the hormone diethylstilbestrol about 5 weeks prior to time of sale. The effect of the injection is to suppress the development of male sex characteristics, to increase the formation of body fat, and to thicken the skin. The major effect is to improve the finish of birds and hence their appearance. Differences of opinion exist as to whether this process improves the flavor.

**Quality of Frozen Chicken Meat.** Most frozen chicken sold in retail stores in Los Angeles appears in an opaque cardboard container. This prevents consumers from seeing and judging the quality of the produce before they buy it. As a substitute for the opportunity of seeing the product the consumer has the brand name of the processor as a guide and on some brands the official grading label giving the quality as judged by United States Department of Agriculture standards. Most of the processors of frozen chicken are also processors of a wide range of frozen products, all supported by nationwide advertising. These factors would tend to lead to uniform high quality of this product. Those processors who have gone further by stamping their packages with the U. S. grade label

have given more information about quality to their customers.

There are, however, several variables which serve to upset the pattern described above and make quality determination by consumers rather haphazard. The most important variable is the time and temperature of holding the product after processing. According to studies made at the Missouri Agricultural Experiment Station,<sup>8</sup> frozen foods generally deteriorate in storage, the score dropping to "acceptable" after 12 months at optimum temperature. "Acceptable" as a score was considered low in quality when compared with the fresh product. The Northeastern Regional Poultry Marketing Committee reports that "Maximum length of storage for maintenance of good appearance of semiscalded pullet roasters unwrapped and held at -10° F and 86 per cent relative humidity was four months."<sup>9</sup>

As the temperature of storage rises and humidity drops, deterioration is more rapid. It is not likely that much frozen poultry is stored as long as 12 months, but customers have no information on the frozen foods they buy about the storage time at the processor or wholesale levels or the temperature at the retail level. Furthermore, the movement from some retail stores is quite slow, and the temperature of holding may fluctuate between day and night storage (with or without a cover on the cabinet). Proper rotation of stocks by retailers and smaller deliveries by wholesalers would tend to alleviate most of the quality problem described above.

Little research has been done to determine the difference in flavor of fresh as compared with frozen chicken. Each customer who has the choice between fresh and frozen chicken to make probably has his own idea of how they compare as to flavor.

<sup>8</sup> Brady, D. E., G. V. Hoover, and L. N. Tucker. Storage of frozen meats, poultry, eggs, fruits, and vegetables. Missouri Agr. Exp. Sta. Res. Bul. 440: 1-78. 1949.

<sup>9</sup> Northeastern Regional Poultry Marketing Committee. Annual Report to the U. S. Office of Experiment Stations, 1951. 3 p. 1952.

## RETAIL PRICES OF CHICKEN MEAT

An analysis of the prices found at retail for a certain product gives valuable clues to the type of competition and to the solution of problems faced by buyers and sellers of that product. Consumers have the final and decisive word to say about what kinds of products they will take and what they will pay for them. Changes that occur at retail usually have quick repercussions throughout the other stages of marketing and in production. In this section an attempt is made to reveal the significant features of chicken meat prices at retail—those features which point to the kind of competition existing at that level.

Retail prices are among the most difficult to analyze. Many of them defy explanation in terms of economic principles. This situation, for department-store pricing, has been explained in these terms:

Pricing is a part of the art of merchandising. The most successful practitioners of this art usually find it difficult to formalize their thinking on price making because intuitive judgments bulk large in pricing decisions. Moreover, the economic and psychological variables that influence a decision vary with the item and the particular conditions under which it must be sold.<sup>10</sup> The above situation applies to retail food pricing only slightly less than to department-store pricing.

The number of items offered for sale in a typical food store is so large that a system of classification is necessary to obtain even a semblance of order out of the whole group. Supermarkets in the Los Angeles area typically display 3,600 separate items. There may be 5 brands of canned tomatoes, 7 brands of canned tuna, and 3 sizes and brands of fresh oranges, for instance. There is no answer to the question, "What is the price of chicken at retail?" just as there is no answer to the question, "What is the price

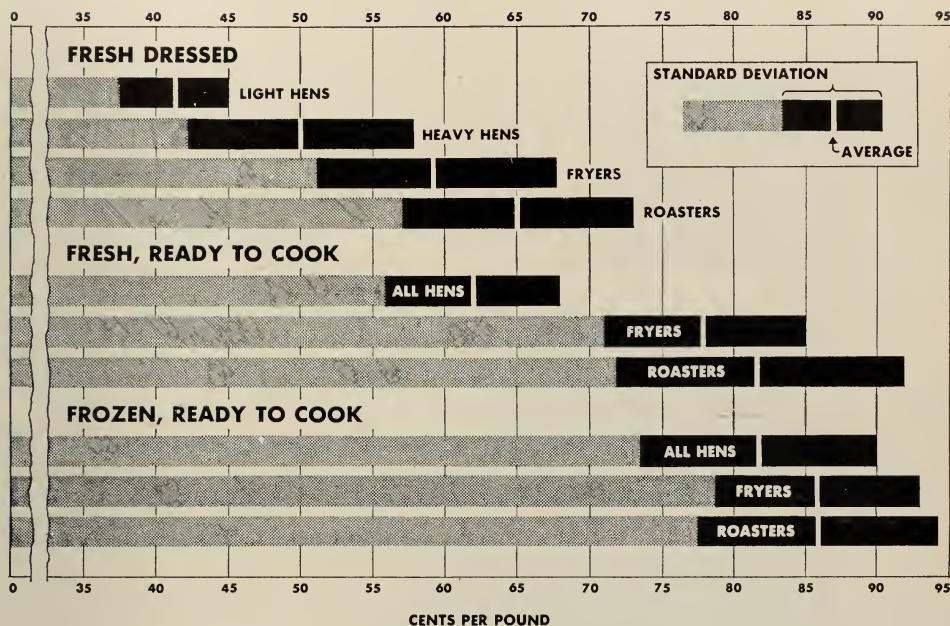
of automobiles?" Every broad category of goods must be broken down into its component parts showing the entire price structure for all kinds, forms, brands, and qualities before the question about price can be answered. The method of analysis in this section, therefore, is to classify the product into the most important forms and classes and observe the over-all variation in prices that occurred. Then an attempt is made by using successive approximations to explain as much of the variation as possible by relating these variations to other economic factors. The variability which remains is to some extent indicative of the competition existing in the market.

Retail chicken prices (for each form and class) showed a wide over-all variation among the stores in the city (table 32 in the Appendix). This fact was important in that it provided a possibility for confusion of store customers. It revealed that customers must be aware of overlapping prices and the reasons therefor if they are to buy intelligently.

The average of weekly average prices and the usual range among stores for the major classes and forms of chicken in the Los Angeles market are shown in figure 4 (taken from table 32). The black portion at the top of each bar indicates the standard deviation, that is, the range within which two thirds of the prices fell. Thus one third of the prices were even higher or lower than the range shown in figure 4. Although the average of only four months is shown, the variation is that which typically occurred throughout the year in which the study took place. A standard deviation of 7 or 8 cents above and below the average price for dressed fryers, for instance, was not unusual. The total range from highest to lowest price was occasionally 20 cents. Customers observing that prices for fryers in printed advertisements ranged from 39 to 59 cents per

<sup>10</sup> Walker, Q. Forrest. Some principles of department store pricing. *Jour. Marketing* 14: 529. 1950.

**Figure 4. Average of Weekly Retail Prices, with Range\* in Prices, by Forms and Classes, All Grades and Brands**  
 Los Angeles market, June–October, 1950



\* Expressed as the standard deviation, which means that two thirds of all the prices observed for any class were within the range shown by the solid part of the bars above and below the average price.

Source of data: Table 32 (Appendix).

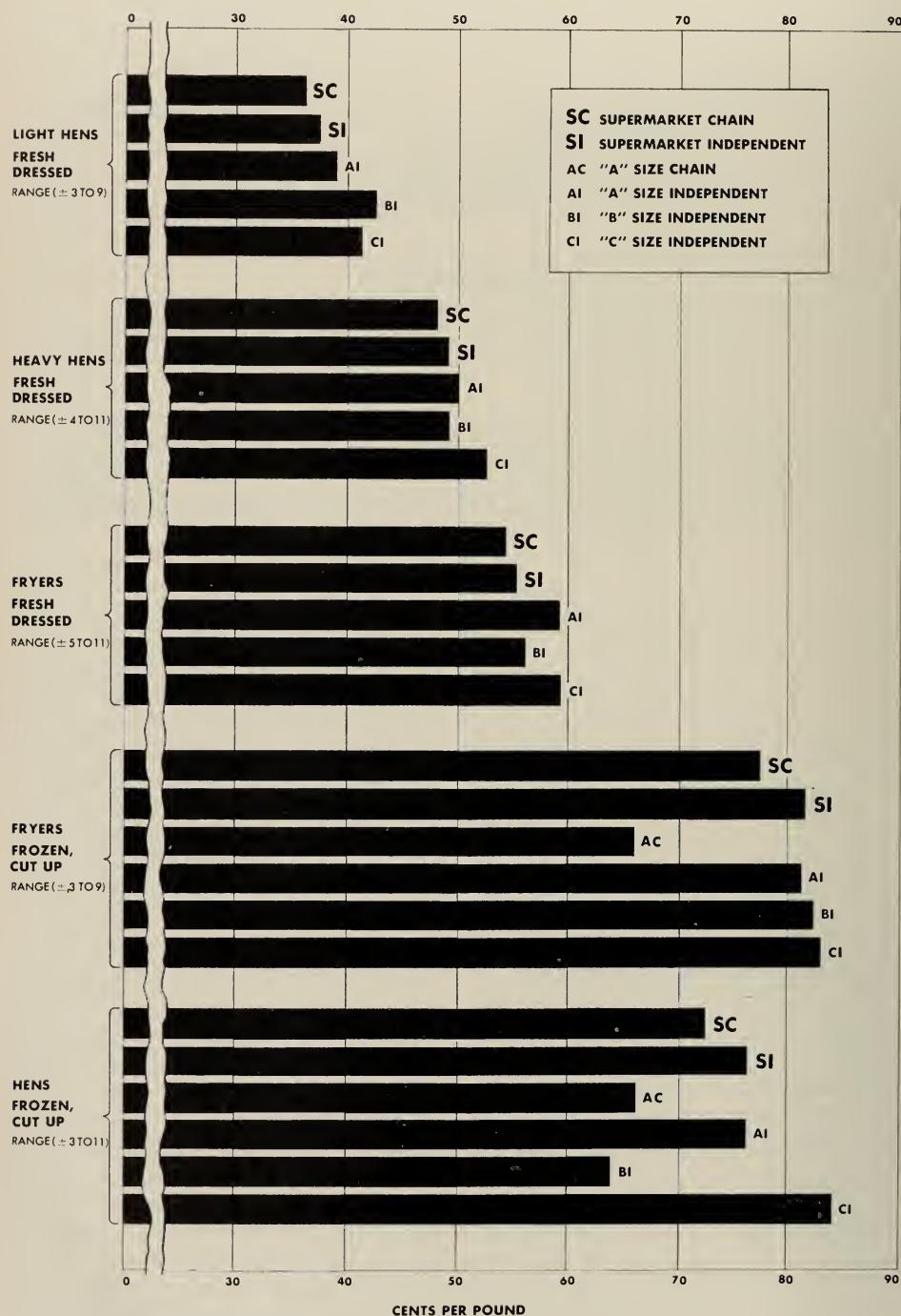
pound must have wondered at the cause for such a variation. Among the causes considered in this study were differences in quality of product, differences in mark-up policy of different sizes and types of stores together with the frequency of advertising, and differences in buying prices. Of these factors, the first two were the ones which consumers could have detected most readily.

**Prices by Size and Type of Store.** A comparison of prices charged for chicken in different sizes and types of stores gives one indication of the competition among stores. When compared with the information concerning quality of chickens carried, a guide useful to customers in buying chicken may be obtained.

Price comparisons for similar products in different types of stores are illustrated in figure 5. The data are given for a limited number of weeks to facilitate the comparison for different products. They

show that when comparing average prices for fresh dressed chicken, there is a small but consistent price difference between chain and independent stores, with the chains charging the lower prices. There is also a small but consistent price difference between the different sizes of independent stores, with the larger stores charging the lower prices. Such a comparison indicates the high level of competition among these types of stores. The price differences noted are probably caused by equivalent differences in cost of operation—the smaller the store, the higher the cost. Some of the differences in price result from quality differences in the chicken handled since, as was pointed out earlier, quality in chickens is related somewhat to price policy among stores, and there are more service-conscious stores—that is, “service” or “nonprice” competing stores—among independents than among the chains. However, it was

**Figure 5. Average of Weekly Retail Prices for Chicken Meat, by Classes and Forms and by Size and Type of Store, All Grades and Brands**  
 Los Angeles market, January–March, 1950



Source of data: Table 33 (Appendix).

shown clearly that all types of stores carry chicken of all kinds of quality.

The price relation among size and types of stores for frozen chicken reveal somewhat the same pattern as for fresh chicken. Independent stores charged consistently higher prices on the average than the chains. This probably results primarily from higher cost and markup policies. Differences in prices among independent stores were small for frozen fryers, with the larger stores charging the lower price. This association was less consistent for frozen hens than for any other item, fresh or frozen. The prices charged by the A-size chain stores were sharply and consistently lower than those for any other type of store in the city. This was owing to two factors: the price of the largest chain in this group carrying this particular item, and the brand carried. The price policy was such that frozen fryers and hens were included in the chain's list of advertised features nearly every week during the period of the study. Hence the markup may have been less than that taken when no advertising was used. Another reason for the lower price in this type of store was that it carried only one brand of frozen chicken—a private brand packed by a processor owned entirely by the retail chain. Hence the buying price of the private brand may have been lower than that of the brands carried by other stores.

In addition to the above relations among the average prices, an important feature is the variation in prices for each class of store. When this is considered, it is seen that there was wide overlapping of prices in different stores for approximately the same product. For instance, during the week of January 8, 1950, two thirds of the fryer prices in supermarket chains varied from 47 to 63 cents per pound while two thirds of the fryer prices in supermarket independents varied from 45 to 67 cents per pound. This situation was typical of all the prices shown for fresh chicken. This overlapping forces

customers to know the general level of chicken prices when selecting a store in which to shop if a good bargain in chicken is desired. Only a small part of the variation in prices shown results from differences in quality of product; the greater portion is the result of differences in buying prices or in markup or price policy of the store.

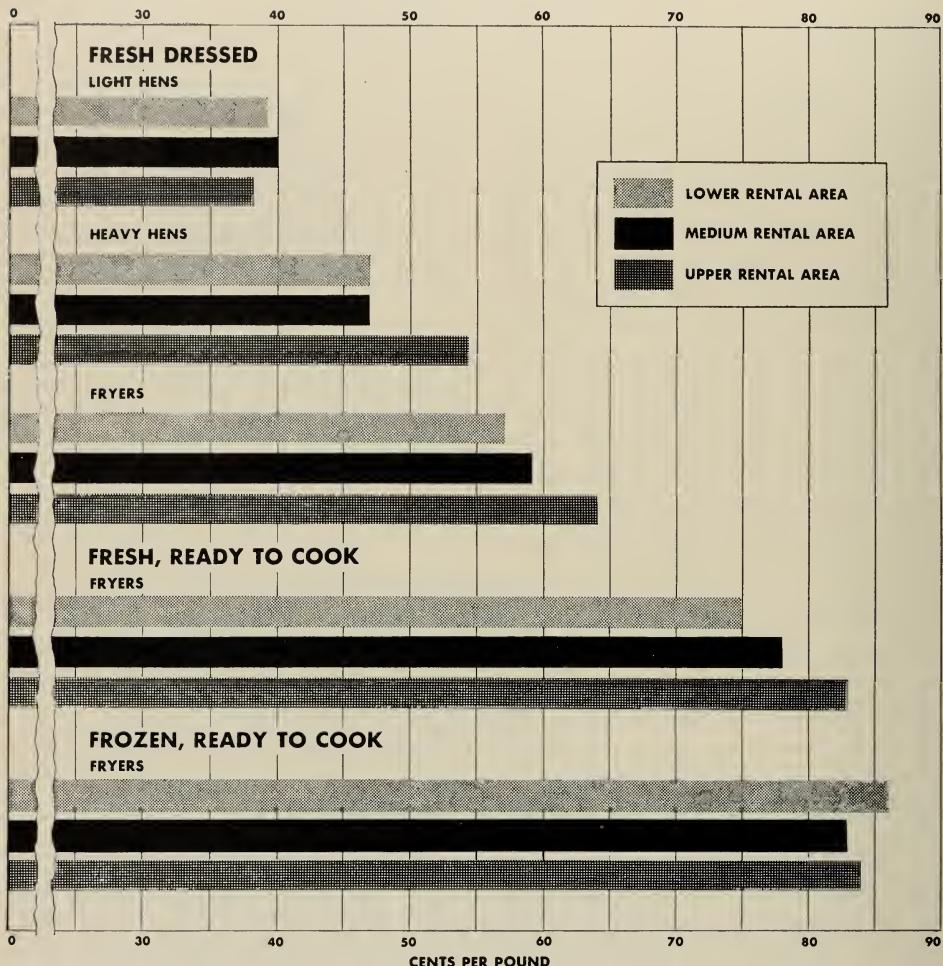
The variations above and below the average prices for frozen chicken are considerably smaller than those for fresh chicken. In view of the uniformity of quality of most frozen chicken, quality is not responsible for the average difference in prices noted for different sizes of stores. Outside of the occasions of a sale price, customers can in general depend upon getting frozen chicken at lower prices in chain stores than in independents. The A-size chain consistently carried frozen chicken at substantially lower prices than any other type of store. This lower price would probably exist, although it might be less pronounced, even if this chain were not carrying chicken as an advertised feature.

#### **Prices in Different Rental Areas.**

Retail prices for chicken meat differ in different rental areas of the market. These differences are large enough to give some indication of the competition existing from this factor (fig. 6). There was little difference in prices among rental areas for light hens and frozen fryers. For the latter products, prices in the low-rental area were highest. For other classes, prices in the high-rental area were higher. The difference between high- and medium-rental areas was greater than the difference between medium- and low-rental areas. The hypothesis that chicken prices differed significantly among rental areas, which was used in constructing the sample design, appears to be confirmed by these data.

Quality of product was partly responsible for the differences shown in figure 6. Stores offering credit, delivery, and clerk service were more numerous in the

**Figure 6. Average Retail Chicken Prices, by Classes and Rental Areas**  
 Los Angeles market, selected weeks, 1950



Source of data: Table 47 (Appendix).

upper rental area. These stores had higher-quality chicken more consistently than other stores (table 13, p. 47). On the average, U. S. grade A chicken retailed for 2 to 10, usually 2 to 4, cents per pound more than U. S. grade B chicken. Therefore, the higher quality in the service-conscious stores, being reflected in higher margins, tended to raise the whole price level in upper rental areas above that in the other areas.

The primary cause of the differences in prices seen in different rental areas was the markup policies of the stores. The

highest prices found in the entire market were in a few "specialty" stores in the high-rental area. They offered special services such as credit, delivery, and telephone-order service to their customers. Part of their markup was owing to locational and prestige values given their products.

In the medium-rental area there were several service-conscious stores, but fewer than in the high-rental area. In the low-rental area, there were few service-conscious stores, most stores being sharply price-conscious. The price dif-

ferences shown are primarily a measure of the competition among the different rental areas. In the low-rental area, store managers had to pay close attention to meeting the competition of other stores in the neighborhood. To the extent that customers were able to protect themselves by recognizing the quality of the product, the greater competition operated to their advantage.

**Prices for Different Classes.** Different classes of chicken are used for different purposes. Yet some of them are closely competitive and a comparison of their retail prices reveals the relative supply-demand influences for each and the influence of consumer preference.

The average of weekly retail prices and their variation (in terms of the standard deviation) for different classes of chicken, both fresh and frozen, that occurred during the year is shown in figure 7. These prices were taken at only one size and type of store (independent supermarkets) in order to eliminate as much as possible the influence of size of store on the comparison. These supermarkets carried on the average more classes and forms of chicken than other stores.

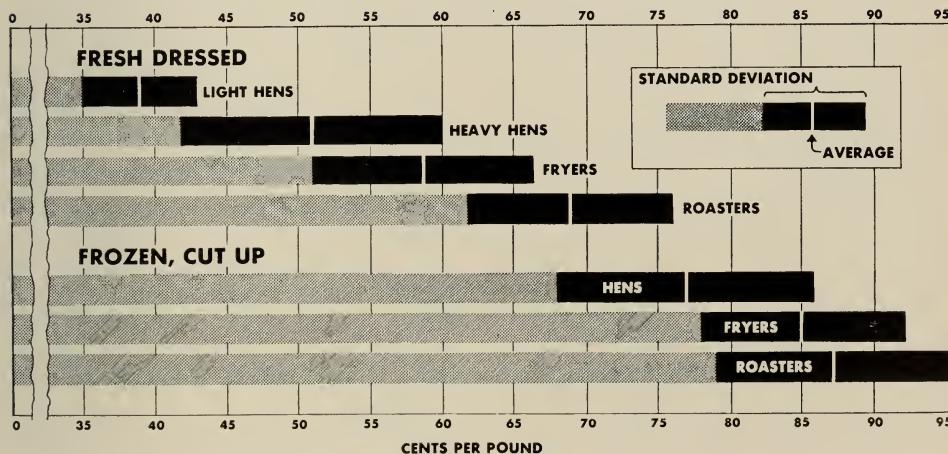
Fryers were handled in largest volume and in more stores than any other class. Their prices can to a large extent be considered the "barometer" of the general level of chicken prices. Fryers and roasters are usually higher priced than hens. Within these groups, light dressed hens were, on the average, 12 cents a pound below heavy dressed hens, and fryers averaged 10 cents a pound below roasters. The same general relation holds true for frozen chicken also. Fryers were the "barometer." Hens were priced about 7 cents a pound below and roasters about 3 cents a pound above them.

The variation in prices within each class is also shown in figure 7. It is these variations in prices which cause the overlapping in prices among classes. Light hens showed the smallest variation, heavy hens the largest, although the variation was about the same for all classes except light hens. There was little overlapping in prices between light and heavy hens, but wide overlapping in prices between all other classes.

The reasons that prices for roasters were higher than those for fryers were that roasters were usually of higher qual-

**Figure 7. Average of Weekly Retail Prices and Their Standard Deviations for Chicken Meat, by Classes and Forms, in Independent Supermarkets**

Los Angeles market, December, 1949–November, 1950



Source of data: Table 34 (Appendix).

ity (better fleshing and finish), the purchase price was higher, and they were subject to a different markup policy. In general, roasters are considered a luxury product and few are produced. One of the reasons for the low production is that the full difference in retail price between fryers and roasters is not passed along to producers (see the following section on markup policies). Producers on the average received about 3 to 5 cents a pound premium for roasters whereas customers paid from 5 to 12 cents a pound more than for fryers. This indicates that a higher degree of competition existed in the fryer class than in the roaster class. A customer is more likely, on the average, to get a "good buy" in fryers.

Heavy hens and light hens are used for the same purposes in the household, yet on the average heavy hens were priced from 9 to 18 cents above light hens. There are two reasons advanced for this difference: The first is the relatively greater supply of light hens. The Los Angeles area is a commercial egg-producing region, and the greater efficiency of the Leghorn breed in converting feed into eggs has led most producers to prefer this breed. Since eggs are the primary source of income to this type of producer, the inefficient or low-producing hens are sold as a by-product of the egg industry. Most of them come to market at about 3 to 4 pounds live weight. This area is also a commercial fryer-producing area, and many producers raise heavy breed hens to furnish eggs for hatching. Hens from these flocks also come on the market. Their average weight is about 4 to 5 pounds live weight. If the qualities of these two classes were equal and consumers had no preference for one over the other, the classes would sell at about the same price at retail regardless of the relative quantities of each available. However, the fact that different quantities are available is of greater importance because there is some consumer preference for one class over the other.

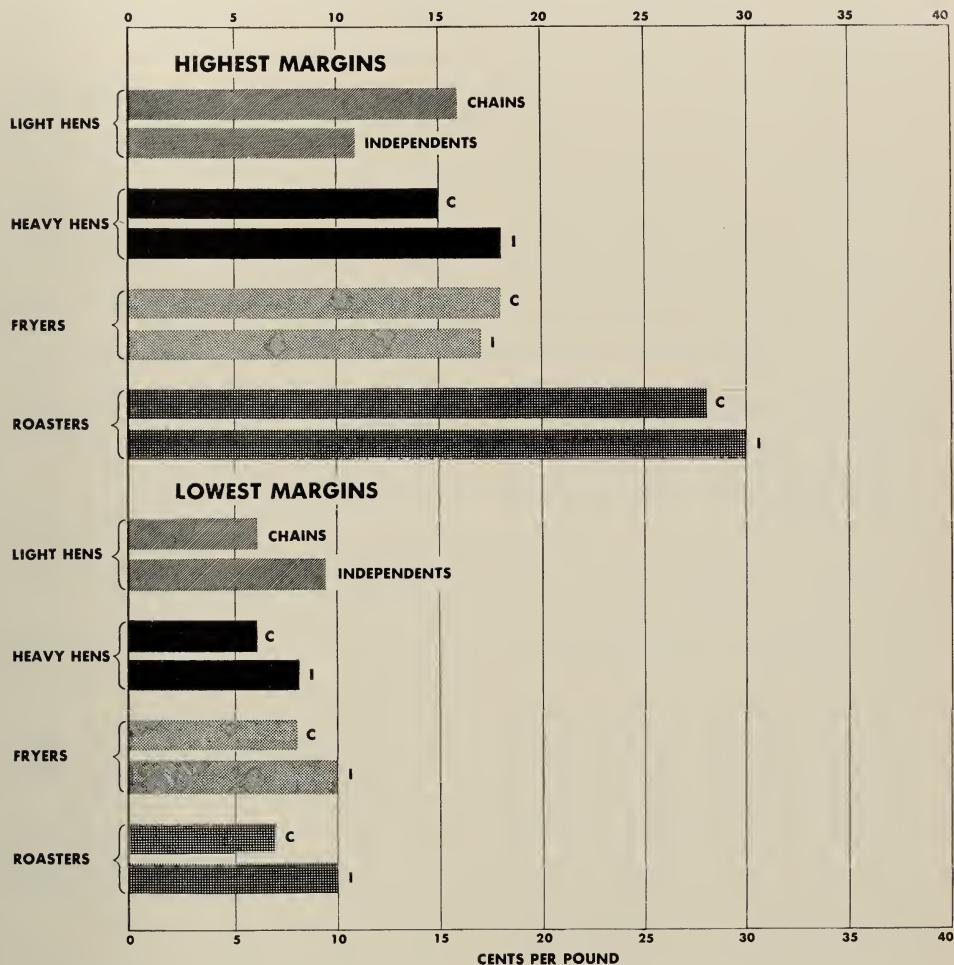
The second reason for the price difference between light and heavy hens is the real and alleged quality differences between them. The real quality difference is based upon the average weight of each class. Consumers prefer and will pay a premium for heavy hens as compared with light-weight hens regardless of the breed or quality. However, this does not account for all the price difference noted because in other markets such as Chicago, where hens are segregated on the basis of weight alone, a price difference this large does not appear. The real quality difference between heavy and light hens has another aspect. That is that many heavy-type hens go to market as young chickens (less than a year in age) and thus can be sold as roasters rather than hens.

The other reason for the price difference is that a consumer preference for meat hens over egg hens exists because of an alleged difference in quality between them. This preference is based upon the color of the birds rather than upon their weight. The origin of this preference is unknown but is suspected to have arisen during past periods when large shipments of Leghorn hens flooded the market and rumors about diseased birds flourished as an explanation of the surplus. This gave rise to the consensus that "colored" birds were to be preferred to the white ones. That this preference is important is attested by most retailers and chicken buyers. Therefore, the relatively large supply of light hens must be sold at a considerable discount below the heavy hens in order to dispose of the supply. This color preference can be exploited by retailers as later evidence will indicate.

**Retail Margins for Different Classes.** Information in this section is closely related to the conclusions contained in the preceding one. Retail supermarkets retain widely different margins for different classes of chicken (fig. 8). For instance, the highest margins in chain

**Figure 8. Lowest and Highest Retail Margins for Fresh Dressed Chicken, at Concurrent Buying and Selling Prices, by Classes, in Supermarkets**

Los Angeles market, December, 1949–July, 1950



Sources of data: Tables 35 and 36 (Appendix).

supermarkets were 14 cents a pound for light hens, 15 cents for heavy hens, 18 cents for fryers, and 28 cents for roasters. The highest margins in independent supermarkets were 11 cents per pound for light hens, 18 cents for heavy hens, 18 cents for fryers, and 30 cents for roasters. In contrast, at the lowest level of margins, the differences between classes were insignificant. This suggests that there is a minimum margin below which stores could not or were not willing to

carry each item. On the average, however, the lowest-priced items were carried at the lowest margin and the highest-priced items were carried at the highest margin. There were no significant differences in the cost of handling these classes.

Differences in retail margins for different items within the same general line of goods are explained partly by custom as well as competition. A store may plan to mark up its meat items in such a fashion that the average markup is 20

per cent. Assuming a certain volume of sales, this will govern the gross income from meat sales. This average markup may change over time with changes in cost of operating the retail business. However, within meat items there are wide differences in the percentage markup. This has been illustrated above for different classes of chicken meat. The same differences exist for different cuts of beef, pork, and lamb. In general the lower-priced cuts are carried at a less-than-average percentage markup and the higher-priced cuts at a more-than-average percentage markup. Custom enters into this practice in that certain items become known as low-margin items and continue in this category. Even if the lower-margin item does not yield sufficient gross income the higher-margin items may compensate for it by yielding higher than necessary income. In this way, high-priced items subsidize low-priced items. Volume of sales influences markup in that a lower margin can profitably be taken on items whose volume is sufficiently above that of other items to yield a satisfactory gross income.

One of the main factors influencing the margin on different items in the same line was the frequency of use of certain items as advertised features. Items selected for advertising attention were usually lower-priced so they might have greater price appeal. Once an item is selected for advertising, competition forces most stores to reduce their margins somewhat so they will be "in line" with that item. An advertised feature may have such a low markup that there is a loss on that item alone. Thus it is necessary for other items with a higher markup to make up the deficit in gross income. The characteristics of items selected by stores for advertising are discussed later.

Retail margins for fresh chicken vary widely over time as well as among the different classes of chicken (fig. 8). The highest margin during the period of this study was frequently double the size of

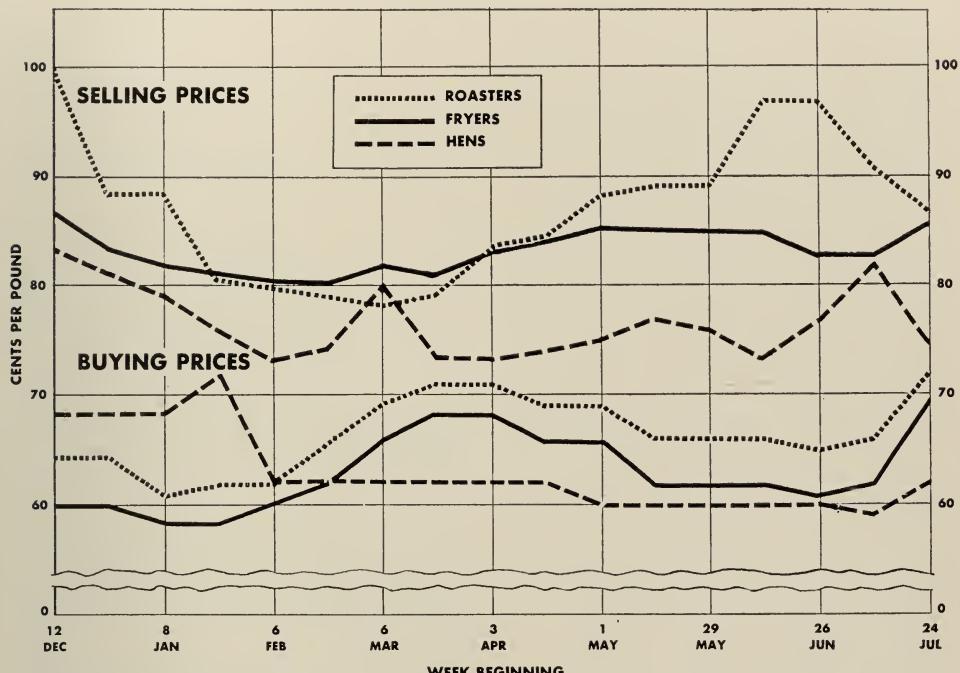
the lowest margin on any one class of product. The difference between the highest and the lowest margin was small for light hens but large for roasters. This suggests that there was much less competition in the roaster market than in the light hen market.

In the periods when the highest margins occurred, the absolute prices for each class were higher than when the lowest margins occurred. The level of chicken prices may affect margins partly because the level of prices affects the desirability of offering an item as an advertised feature. Margins may also be affected by relative as well as absolute levels of prices. When chicken prices are high relative to those of other meats retailers do not advertise chicken as a feature item so often as when they are low.

An analysis of retail margins for frozen chicken meat offers some contrasts with those for fresh chicken. The absolute margin for frozen fryers in independent supermarkets averaged about 20 cents a pound and the margin for fresh fryers about 14 cents; they were, however, the same percentage of the respective retail prices. The weekly retail buying and selling prices for different classes of frozen chicken for the year of this study are shown in figure 9. It shows that the margin for hens was usually lower than that for fryers and the margin for fryers usually lower than that for roasters. The margin for fryers varied from 13 to 27 cents a pound, for hens from 11 to 23 cents, and for roasters from 8 to 36 cents. The margin for fryers fluctuated in an opposite direction from the level of prices: when the buying prices were highest the margin was lowest. The cause of this situation was that retail selling prices fluctuated less than the buying prices. Selling prices of frozen fryers were also relatively stable as compared with fresh fryers or with other frozen chicken products. One cause of this stability of frozen as compared with fresh fryers was that frozen chicken was only

**Figure 9. Average Weekly Buying and Selling Prices for Frozen Cut-up Chicken, by Classes, in Independent Supermarkets**

Los Angeles market, every other week, December, 1949–July, 1950



Source of data: Table 37 (Appendix).

infrequently used as an advertised feature item when the price was dropped below normal. Another cause was that frozen chicken is usually considered a grocery rather than a meat item.

**Margins and Critical Prices.** For many food commodities retailers apply a stable markup figure regardless of price variations that occur. A retailer may logically argue that his costs do not vary at the same time that chicken prices vary. Therefore he is justified in taking the same markup all the time, if the quality remains the same. Whether he will be able to maintain what he considers adequate volume of sales in the face of this policy will depend upon what consumers feel is reasonable and on the kind of competition each retailer faces.

For many other food items there appear to be certain levels of price, "ordinary" prices, which are charged much

of the time even when wholesale prices vary widely. This is notably true in the pricing and sale of fresh chicken. An attempt is made in this section to investigate this practice.

Many retailers mentioned their dislike of rising chicken prices. They felt a "critical" price existed among their clientele for each item above which they were not free to go without a sharp decline in patronage. Once the critical retail price was reached, further rises in buying prices forced them to accept lower margins.

In an effort to obtain more complete information about this aspect of retail margins for chicken, a special questionnaire was used to obtain information from the 64 sample stores during one week of the survey. The week selected was one of a series during which the price of fryers had been rising and had reached

a point higher than that existing for the previous several months. Nearly all meat-department managers interviewed were familiar with the idea of a "critical" price for chickens. They understood immediately what the question involved and had no hesitation in naming a figure for each class which they felt was about the upper limit they could safely charge and maintain adequate volume of sales.

Their answers about the relation between markup practices and the level of chicken prices are summarized in table 10. The practice of changing the markup only after a critical price has been reached apparently is the least popular of three courses of action suggested. There appears to be no consistent policy with regard to changing markup in periods of price changes among the sample stores. There is such mixed policy that it may be concluded that other factors such as price policy of the store or quality of product sold govern markup policy to a great extent.

Data intended to compare actual prices at retail with the "critical" price estimates given by retailers are presented in figure 10. Modal prices shown were the prices charged for the various classes and forms of chicken during the weeks shown. "Critical" price estimates were the prices given by retailers for each form and class

of chicken as the price above which sales declined sharply. In other words, above the critical price the demand curve, or the level of demand, changes sharply.

Although there was wide variation in prices charged for each class, certain figures occurred more frequently than others. These modal prices represent "ordinary," or most familiar prices. For instance, 49 and 55 cents per pound occurred most frequently for fryers, 59 cents most frequently for caponettes, 69 and 75 cents most frequently for cut-up fryers. One may conclude from this that under certain circumstances retailers varied their margin to accommodate the price to a familiar figure. To this extent, this practice accounts for some of the variation in markup shown previously.

There was little if any relation between critical prices and size and type of store. The wide variation in critical prices indicated that they are relative to what the store patrons are accustomed to paying and that they do not occur in any definite relation to chicken prices in other stores. Critical prices for chicken in one store may be related to prices of other meats in the same store.

**Margins and Quality.** Another factor affecting retail margins is the quality of chicken in periods of changing supply and prices. Information about the rela-

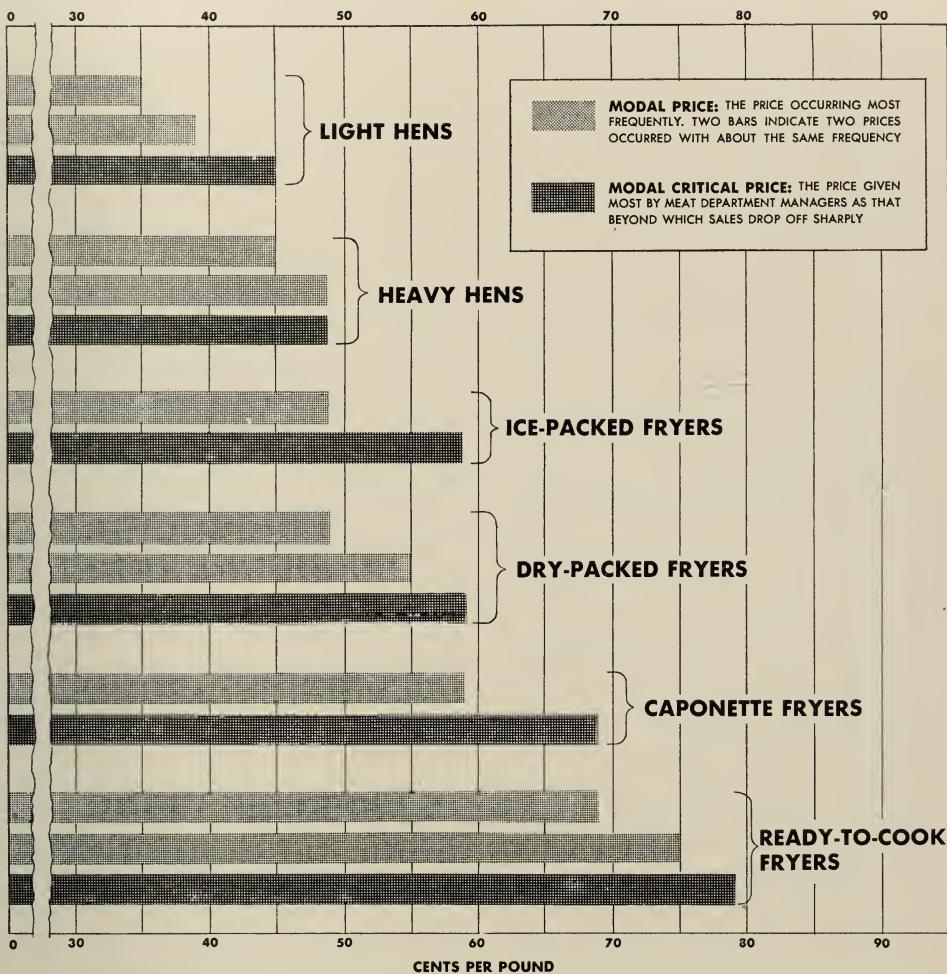
**Table 10. Retail Store Practices on Markup for Fresh Chicken**  
Los Angeles market, May, 1950

Size and type of store	Stores interviewed	Stores reporting each market practice		
		Constant percentage*	Constant percentage up to critical price	Percentage varies inversely with price level†
	number	number	number	number
Supermarket chain.....	8	5	1	2
Supermarket independent..	7	1	1	5
A-size independent.....	17	6	2	9
B-size independent.....	11	8	0	3
C-size independent.....	7	5	1	1

\* Regardless of level of prices, except during sales.

† Reduced in periods of high prices, increased in periods of low prices.

**Figure 10. Modal Retail Prices and Modal "Critical" Price Estimates, for Major Classes of Fresh Chicken**  
 Los Angeles market, selected weeks, 1950



Source of data: Table 38 (Appendix).

tion between quality of chickens and level of price, as experienced by the meat managers of the sample stores, is given in table 11. This information was obtained by asking each manager his experiences during periods of rising prices such as the one in May and June, 1950.

The large majority of all stores reported that they noted no particular difference in quality of chickens during periods of rising prices. Many commented that processors are continuously trying to give them lower quality than

they order, but that they can obtain what they want by insisting upon it. At the same time between 20 and 40 per cent of the stores of the various types in the sample did report a decline in quality. This is strong evidence that there was a change in the quality of chickens available to processors. The chickens had to be sold to some outlets. It is possible that the stores that would accept the lower quality also had a price policy that was adaptable to this situation. This may account in some measure for the variation

**Table 11. Change in Quality of Fresh Chickens at Retail during Periods of Short Supply and Rising Prices**  
 Los Angeles market, May-June, 1950

Size and type of store	Stores interviewed	Quality declines		Quality remains same
		number	number	
Supermarket chain . . . . .	10	3	7	
Supermarket independent . . . . .	7	2	5	
A-size independent . . . . .	17	4	13	
B-size independent . . . . .	9	2	7	
C-size independent . . . . .	5	1	4	

in markup policy noted in the previous table. It can be argued by a retailer that even though his costs do not vary with varying product prices, he is not justified in charging the same markup for poorer-quality birds. A cross-check of the identity of each store with its comment from both tables 10 and 11 shows that many of those which showed a flexible markup policy were the same as those which reported that quality of chicken declined as prices rose.

**Prices for Various Forms of Chicken.** Certain retail outlets for chicken in the Los Angeles market specialized in offering particular forms of the product. For instance, many of the newly constructed food stores in the area had only self-service meats, hence carry only ready-to-cook chicken. Most butcher-served meat markets in the city carried chicken in the dressed form. Retail dressed-poultry markets carried chicken in both forms. In addition to these outlets, there were about 100 or more retail live-poultry stores scattered throughout the area.<sup>11</sup> The presence of these alternative forms, which in reality may be the same product, presented a problem to customers. They had to classify the numerous prices and different services offered at each outlet to arrive at a satisfactory solution.

The comparative prices for the different forms of the same product offered at different outlets revealed to some extent the competition between them. Great emphasis must not be placed on price comparisons, however, because of the wide differences in margins and in methods of advertising and merchandising.

One difficulty which consumers face in comparing these alternative outlets is that of determining relative quality of the product in each. No generalization can be made about the relative quality of chickens handled by any particular outlet. The difficulty of grading live chickens is well known, and the authors made no attempt to determine accurately the quality carried by the live-poultry retail store. The type of operation in which a live chicken may be kept in the store for several days before being sold generally requires a high standard of quality. Beyond this all outlets carry all qualities.

Another difficulty customers face is that of taking account of the amount of waste which occurs in processing a chicken from one form to another. There is, for instance, a 12 per cent loss in weight in processing fryers from the live to the dressed form, and a further 24 per cent loss in converting the dressed bird to the ready-to-cook form. This means that consumers pay the same total cost for

<sup>11</sup> For a discussion of the method of operation of this type of outlet, see the paper cited in footnote 2, p. 11.

a fryer of a given weight and quality when paying 50 cents a pound live weight, 57 cents a pound dressed, or 75 cents a pound cut up.<sup>12</sup> The conversion factors used to determine price equivalence for the various forms cannot be easily remembered and are not widely known to consumers. Therefore consumers must depend largely upon the level of competition existing among the outlets.

Price comparisons between the different forms of chicken can, however, be made. Average weekly prices found in the area for the different forms from November, 1949, to September, 1950, are given in figure 11. Prices for the live and

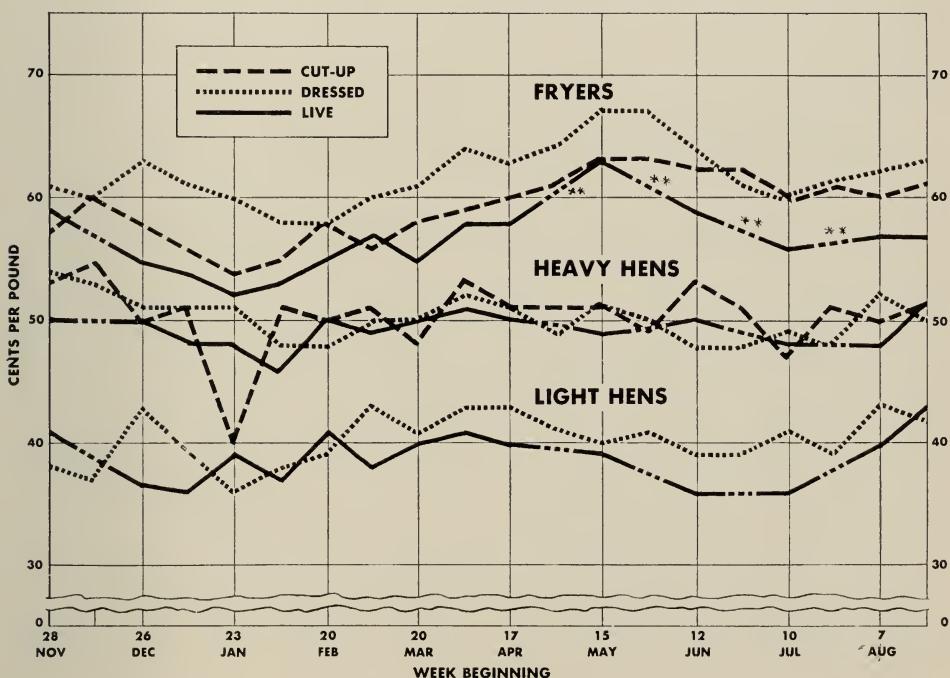
the cut-up form were converted to the equivalent dressed-form prices.

In general, the prices charged for the various forms showed remarkable uniformity, indicating a high degree of competition between them. There was a small but consistent price advantage offered to the buyer of live fryers as compared to the buyer of the dressed and cut-up product. The differences noted between different forms for heavy hens and light hens were small and were not consistently advantageous to one form or another. They could have been caused by differences in quality, sale price, or mark-up policy.

<sup>12</sup> Calculated from data given by: Benjamin, E. W., H. C. Pierce, and W. D. Termohlen. Marketing poultry products. 4th ed. p. 158. John Wiley and Sons, Inc., New York, N.Y. 1949.

**Figure 11. Average Weekly Retail Prices (Dressed Equivalent\*) for Chicken Meat, by Classes, Live, Dressed, and Cut-up**

Los Angeles market, every other week, November, 1949—September, 1950



\* "Dressed equivalent prices" means that prices of live birds and those of cut-up birds have been made comparable by conversion to the price at which they would sell as dressed birds, if dressing ratio was the only variable considered. Price quotations for the cut-up birds were multiplied by 0.76 for fryers and 0.80 for hens, and quotations for live birds were multiplied by 1.14 for fryers and hens to convert quoted prices to dressed equivalent prices.

\*\* Prices were not available for these weeks.

Source of data: Table 39 (Appendix).

**Table 12. Relative Variation among Sample Stores in Chicken Prices,  
Fresh and Frozen U. S. Grade A,\* by Classes**  
Los Angeles, November, 1949-July, 1950

Week beginning	Coefficient of variation in:			
	Fresh fryers	Frozen fryers	Fresh hens	Frozen hens
Nov. 7.....	12.9	6.9	12.5	4.3
Nov. 28.....	14.7	6.0	12.9	12.6
Dec. 12.....	13.3	14.8	15.0	11.8
Dec. 26.....	10.0	1.2	15.6	9.2
Jan. 8.....	11.8	11.2	11.7	13.3
Jan. 23.....	14.0	8.6	18.7	13.1
Feb. 6.....	10.5	8.7	16.3	13.1
Feb. 20.....	10.1	7.5	12.5	13.1
Mar. 6.....	10.3	4.9	14.0	11.3
Mar. 20.....	11.8	6.0	10.0	10.2
Apr. 3.....	12.9	9.6	11.5	11.2
Apr. 17.....	11.4	5.9	19.6	7.6
May 1.....	8.0	9.6	14.2	11.5
May 15.....	7.6	7.1	13.7	11.5
May 29.....	9.2	8.3	14.0	12.8
June 12.....	12.6	7.0	16.3	12.8
June 26.....	14.7	7.0	16.6	10.9
July 10.....	11.6	5.8	14.5	10.8
July 24.....	9.8	6.9	16.3	5.1

\* Graded fresh chickens and one of the leading brands of frozen chickens.

However, the level of competition among the various forms—that is, the readiness with which consumers shifted from one form to another—was not determined primarily by relative prices. Customers did not have the information or ability to compare quality or to convert prices to a common denominator. Competition was determined more by non-price factors such as habit and custom, ease in buying, or the particular appeal of different methods of advertising and merchandising to each customer.

**Price Variability of Fresh and Frozen Chicken.** Fresh chicken prices

showed greater variation among stores than did frozen chicken prices. This was true even when differences in quality of the two products were partially removed as a cause of the price variability. This was done by comparing the coefficient of variation<sup>13</sup> of prices for fresh fryers and hens with that for frozen fryers and hens, using only prices for U. S. grade A products.<sup>14</sup> The result is given in table 12.

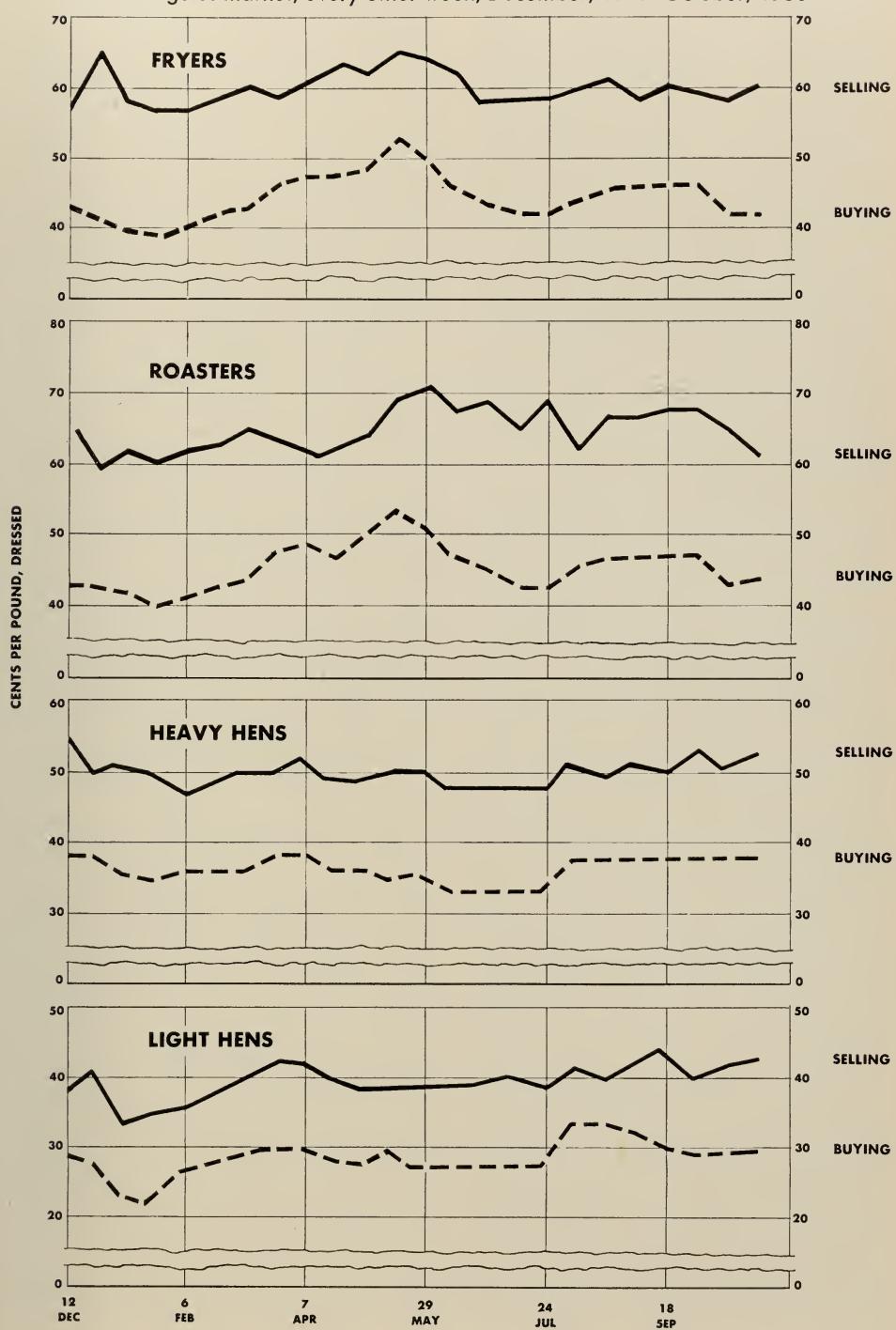
This picture of the relative variation in prices of a local as compared to a shipped-in product is a typical one; it probably could be duplicated in many different markets with many different

<sup>13</sup> This refers to the ratio of the standard deviation to the mean of any series. This measure solves the difficulty of measuring variation in series having absolute differences in price level.

<sup>14</sup> Only so far as there is a relation between price and quality at retail in the city are quality differences eliminated between the two products in this comparison. This is because fresh chicken is not sold on a graded basis at retail and there is nearly as much variation in prices of graded fresh as of all fresh chickens. See discussion of price-quality relation.

**Figure 12. Average Weekly Retail Buying and Selling Prices for Fresh Chicken Meat, by Classes**

Los Angeles market, every other week, December, 1949–October, 1950



Source of data: Table 40 (Appendix).

products. The characteristics of the product (uniformity of quality, method of handling, perishability) and the type of competition existing caused prices to be what they were. The shipped-in product is like a grocery item and the prices do not have to fluctuate as rapidly as the fresh product to remain competitive. This picture of relative variation in prices serves to focus attention on one aspect of the competition between these two products. This topic will be discussed in greater detail in a later section.

**Price Fluctuations at Wholesale and at Retail.** One of the difficulties frequently encountered in marketing farm products is disposing of larger supplies as they become available. Prompt disposal requires that prices at wholesale and retail be flexible and responsive to the changed supply, and that consumers be aware of the changed prices so that they will increase their purchases of the plentiful product. A lag in price changes at retail behind those at wholesale is a barrier to the prompt movement of products into consumption.

Chicken producers in this area feel that their prices occasionally decline for some time before wholesale and retail prices fall. The price data collected at retail stores in this project offer an opportunity to study retail and wholesale prices to determine the relative flexibility of each. This flexibility has a bearing on producers' ability to sell their product in times of increasing supply, and on consumers' ability to compare prices of chicken with those of other meats and arrive at the best decision.

Weekly average retail buying and selling prices for different classes of chickens for nearly a year during 1949 and 1950 are shown in figure 12.<sup>15</sup> During this period prices of heavy hens remained fairly stable, varying only 4 cents at wholesale and 7 cents at retail. These

changes occurred erratically and not in any gradual rising and falling pattern. Fryer prices varied by 14 cents at wholesale and only 9 cents at retail. The long gradual rise in wholesale prices from January to May, 1950, and the fall from May to July seemed to be paralleled by changes in the same direction in retail prices. Table 40 (p. 121) gives the weekly average wholesale and retail prices by classes for this period.

The tentative conclusion is that average retail prices for fryers and light hens showed a close relation with wholesale prices as far as flexibility was concerned. The data for roasters were too meager, and heavy hen prices fluctuated too little to draw any conclusions. In making the above statement, at least two conditions must be considered. The first is that the determination of retail price of fryers or heavy hens or any other product is a difficult matter at best. First the product has to be carefully defined, then the time and place at which it is offered have to be considered. It has been shown in previous sections that there are innumerable influences at work on retail prices. Although average retail prices closely parallel wholesale prices, individual store prices may frequently vary from this norm.

The second condition to be considered is the use of averages. The selection of the sample of stores from which these data were collected was predicated upon use of average data from them. These averages were designed to give (within a known range of error) data which represented the true situation in the whole area. Averages are greatly affected by the extremes in values of a series. It has been shown that prices for the same kind and type of chicken varied widely in the city. Averages also tend to obscure the variations, which in themselves may be quite important.

<sup>15</sup> Average retail prices in figure 12 are simple averages of the prices found in all 64 stores. The weighted average prices based upon the volume of chicken sold by each size and type of store were close enough to the simple average that conclusions were unchanged.

## QUALITY-PRICE RELATIONS FOR CHICKEN MEAT

Previous sections of this report have discussed data concerning prices for different classes and forms of chicken meat. We have so far considered only incidentally the relation between retail prices for fresh chicken meat and quality. The relation is a significant one because it sheds light on the degree of competition existing for the product. Consumer confidence and satisfaction with chicken meat may be influenced by whether or not prices for the product are reliable guides to quality. It should be remembered that there are no uniform standards used for labeling quality of chickens either in the Los Angeles market or in other markets in the Western Region. Some brands of frozen, box-packed chicken meat appear on the market clearly labeled as to quality according to United States Department of Agriculture standards. Only rarely is fresh chicken labeled according to such standards.

The primary objective of this section is to analyze the relation, if any, of retail prices to quality of chicken. This includes an attempt to offer possible explanations and suggestions for improvement. The objective is not to determine the feasibility of introducing a grading system. If the data indicate a need for a uniform grading system, the possible benefit must be weighed against the costs before the industry introduces such a change in present operating practices. It is necessary to determine the effect of such a system on producers, processors, and consumers and to evaluate the costs (monetary and nonmonetary) against the gains. The problem of consumer acceptance of a uniform grading system is considered in a later section of this study (Experiments in Grade Labeling and Consumer Preferences).

**Prices by Grades.** Individual store prices for fresh chicken meat in the Los Angeles area, as indicated earlier, were not reliable guides to the customer in

obtaining the quality of chicken desired, unless it was purchased from a service-conscious store.

This conclusion reveals an important cause of producer and consumer dissatisfaction with the operation of the market. If some high-quality chickens bring a high price at retail, producers may justifiably wonder why all such chickens do not sell for a premium. Consumers may be confused and discouraged from buying by the wide variation in prices of chicken with no definite indication of quality associated with each price.

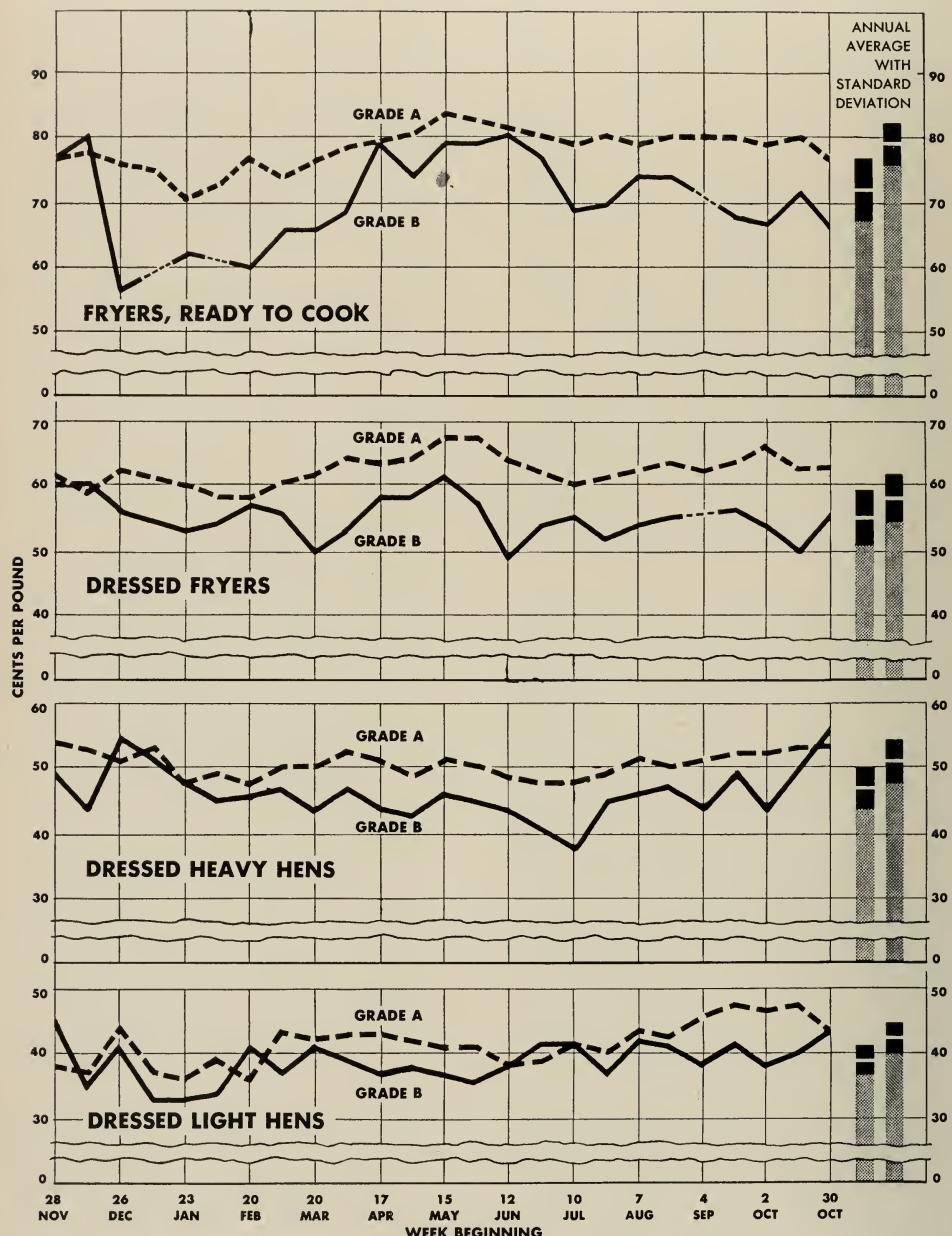
The relation existing in a market between the price and the quality of an agricultural product has an important bearing on the confidence consumers will have in buying this product. American consumers have a high degree of freedom of choice in the selection of foods. There are many foods that are close substitutes for each other. In order to make the proper selection and to make best use of this freedom, consumers buying fresh chicken need information they do not now have readily available. They have information concerning prices of chicken but often cannot get information concerning quality. Quality of a product is an inseparable part of its price.

The relation existing in a market between quality and price also has importance for producers. If it were possible for consumers to express their free choice of quality through purchases at various prices, the market could give more efficient price guidance to producers of various qualities of the product than is now possible.

The weekly area-wide average price and standard deviation which occurred for the principal grades of the major classes of chicken meat during the period of this study are given in figure 13. To eliminate the effect of changing quality during different days of the week, all the grading was done on Thursdays and

**Figure 13. Average Weekly Retail Prices and Their Standard Deviations for Fresh Chicken, U. S. Grade A and U. S. Grade B, by Classes**

Los Angeles market, every other week, November, 1949–November, 1950



Source of data: Table 41 (Appendix).

Fridays; these days revealed the price and quality situation existing for the majority of sales for that week.<sup>16</sup> Each display was graded as a whole according to United States Department of Agriculture standards. This grading permitted the same tolerances in each display as are allowed in grading boxes of dressed chicken. Displays in retail stores were not graded by individual birds. Few of the displays had any wording on them indicating the quality.

The data in figure 13 indicate that when average prices for all U. S. grade A and B chickens are compared, there was a 2- to 10-cent, usually 2- to 4-cent, price differential existing for the higher quality. This price premium did not result entirely from the difference in quality because other factors affecting the difference were not eliminated. There was a relation, for instance, between kind of store and quality of chicken handled. Higher-quality chickens tend to be handled more by stores which take a higher markup on their products—partly to pay for the additional services, such as credit and delivery offered. Hence the highest prices found had something other than quality of product influencing them.

The positive relation between average retail prices and quality was probably caused largely by differences in wholesale prices for different qualities. No data have been collected to prove it, but the experience of the authors and local United States Department of Agriculture graders is that processors consider quality as one of the major reasons for differences in prices they charge. A number of processors have commented that their chickens which rated U. S. grade A sold for the top price. This is because there is a high level of competition among retail-store meat buyers. They know all the sources of supply and have access to

them; they know the factors making up quality in chicken; they buy frequently; and they have relatively high bargaining power with processors through the threat of transferring their patronage to another processor. Thus, in the authors' opinion, a more reliable relation between price and quality existed at wholesale than at retail.

The standard deviation about the average prices charged for each class of fresh chicken is seen in figure 13 and table 41. A wide variation in prices was present even when displays were classified into different grades. During the week of November 28, 1949, for instance, two thirds of the U. S. grade A dressed fryers observed were priced between 52 cents and 70 cents a pound, the total range being from 45 cents to 75 cents. Two thirds of the U. S. grade A heavy-hen displays observed ranged from 47 cents to 61 cents. Variations of this kind occurred frequently. Unless these variations are classified and explained they could create confusion among consumers and lack of trust in market middlemen among producers.

There frequently was overlapping of prices between grades. Many chickens in the lower grades were sold at prices equal to or higher than those in the higher grades. For instance, during the week of December 26, 1949, two thirds of the U. S. grade A dressed fryers observed were priced from 56 to 68 cents while two thirds of the U. S. grade B fryers observed were priced from 48 to 64 cents.

The overlapping between prices and the different qualities for fresh chickens was not surprising for at least three reasons: (1) the absence of a uniform grading system at retail, (2) the presence of widely varying price policies of retail stores, and (3) the fact that consumers were not fully aware of the characteristics of quality which were desirable in

<sup>16</sup> Data showing proportion of chicken purchases made on week ends were not collected. However, the situation in Los Angeles in this regard is believed to be similar to that in other large cities. See: Smith, Harold D. Consumer preference and buying habits for chickens. Maryland Agr. Ext. Serv. Misc. Pub. 8: 1-23. 1951.

chicken and those which were not. A grading system at retail would permit consumers to buy more wisely and thus would serve to reduce the price spread within each grade. A grading system would gradually educate consumers to those factors which constitute quality in fresh chickens. It would reveal to them which stores offer chicken of the quality they want.

The existence of a uniform grading system, however, does not guarantee that a high correlation between price and quality of a product will appear. In the first place, quality labels may be misapplied when the product has not been graded by qualified persons.<sup>17</sup> In the second place, the difference in price policies of stores would still permit some overlapping of prices among the different grades.

Other reasons which can account for an absence of a positive relation between grade and price even if a grading system is used are: (1) lack of knowledge of United States grade standards of the product by retailers; (2) the tendency of retailers to maintain stable prices from week to week and season to season even though quality may vary considerably; and (most importantly) (3) consumers have a knowledge of the characteristics of the product which they prefer but the United States standards do not accurately or reliably reflect the relative importance of various characteristics as expressed by consumers.

Hence, one cannot conclude that the introduction of a uniform grading system will immediately result in a positive cor-

relation between price and quality of the product. Even though the grading segregates the product and labels it accurately, consumers may not rate certain characteristics as highly as the United States Department of Agriculture standards. Repeat buying by consumers will educate them to the "best buy" (that is, optimum utility per dollar spent) for each situation and income group. A negative correlation between price and quality could result. Under these conditions United States Department of Agriculture standards would be changed to conform to the new information.

If it is said that the level of competition in the retail chicken market is measured by the price-quality relation for chicken meat among a group of stores, then it must be assumed that consumers are primarily concerned with the "best buy" for each product purchased. Consumer inertia and lack of education about quality greatly influence purchases. The feeling may simply be that expenditures for a certain quality in chicken meat are not worth the trouble of shopping around to get the "best buy." It is more likely, however, that consumers are concerned with getting the "best buy" in some store, considering all its products as a whole. Then they shop at that store and usually ignore prices in other stores because of the inconvenience of visiting more than one. Hence, there could be a high degree of competition at the significant level (the whole store) but a low degree of competition, expressed by unreliable price-quality relations, for any one prod-

<sup>17</sup> For instance a study made by Childress of the relation of grade defects and prices of potatoes in New York City concluded "...there appears to be no significant relationship of prices consumers paid for potatoes to the proportion of grade defects." (Childress, Russell L. Grade qualities of potatoes in retail stores. Cornell Agr. Exp. Sta. A. E. 707: 80. 1950.) The most important reason explaining this situation for potatoes is that there was little or no correlation between the grade labels found on the potatoes and the actual quality as judged by United States Department of Agriculture graders. This indicated that consumers did not recognize grade defects that appeared and were buying according to the labels as indicators of quality. Childress states that "... the placards (over the bulk potato displays) almost invariably state the potatoes are of the U. S. No. 1 grade." This type of retailing does not promote consumer confidence or consumer education in the characteristics which determine different grades of quality. A grading system which deceives consumers is worse than none at all.

**Table 13. Incidence of Different Grades of Fresh Chicken Displays in Different Classes of Retail Food Stores**  
 Los Angeles market, 1949-1950

Class of store	Fryers				Heavy hens, dressed		Light hens, dressed	
	Dressed		Ready-to-cook		Grade A	Grade B	Grade A	Grade B
	Grade A	Grade B	Grade A	Grade B	Grade A	Grade B	Grade A	Grade B
Service-conscious....	number	number	number	number	number	number	number	number
Service-conscious....	12	2	9	0	11	0	0	0
Price-conscious.....	4	9	4	2	8	0	4	4

uct among a group of stores. Price variations at retail must be considered with these factors in mind.

**Prices and Types of Store.** Some consumers may use type of store rather than price as a guide to quality of chicken at retail. Most retail food stores can be conveniently classed as either "price-conscious" or "service-conscious" stores. "Price-conscious" refers to a store that in its merchandising operations places relatively more emphasis on price competition than on quality-of-product and service competition. Service-conscious stores usually also offer credit, delivery, specialty products, and so on. An analysis of prices and quality of fresh chicken in each of these types of stores reveals information of value to consumers.

The frequency of occurrence of the different grades in different types of stores during one week is shown in table 13. During the week of July 10, 1950, 12 out of 14 displays of dressed fryers in service-conscious stores in the sample were U. S. grade A, whereas only 4 out of 13 displays in price-conscious stores were U. S. grade A. In this same week the price 55 cents a pound for dressed fryers was the boundary line between these two types of stores. None of the service-conscious stores carried fryers for less than 55 cents a pound, and none of the price-conscious stores carried fryers for more than 55 cents a pound.

The situation for the week described above is rather typical of that existing for the several weeks that were examined closely. However, consumers may not be able to use this information. Frequently they cannot afford the price which results from the higher markup taken by most service-conscious stores to cover the costs of extra services as well as quality of products. Service-conscious stores are not available in every neighborhood; and many stores do not fall easily into one classification or the other. Furthermore, some service-conscious stores handle grade B quality, and some price-conscious stores grade A. Any shopper who has a choice between these two types of stores needs to know the quality of products offered before he can make satisfying purchases.

**Prices and Brands of Chicken Meat.** Since prices and type of store are not entirely satisfactory as guides to quality of fresh chicken some consumers may desire to use brands as a guide. Only a small proportion of the fresh chicken sold in Los Angeles is offered as a branded product. The branded chicken meat is about equivalent in quality to commercial grade A, a term used and understood by processors and retailers. It includes a wider range of quality of the product than does the U. S. grade A. It includes all of the chickens that would meet specifications for U. S. grade A

chickens and most of those that would be included in the U. S. grade B classification.<sup>18</sup> If consumers desire to have quality distinctions made on the basis of the United States Department of Agriculture specifications then present brands are not a reliable guide to quality. If, however, consumers' sense of discrimination for quality is not acute, if they are concerned only with broader quality classifications as used by processors, then the reputation of the processor is the key to whether brands are a guide to quality. The degree to which consumers are conscious of the different quality characteristics of chicken and look for these characteristics when buying is known only slightly.

Branding of fresh chicken meat has become more commonplace in the Los Angeles market in the past five years. Branding is done by means of a tag attached to the carcass in some way so the consumer can identify the product. The larger meat packers have been leaders in this movement. As their output and sales have increased the proportion of branded fryers on the market has increased.

The purpose of this branding is the same as that of any branding by manufacturers or processors—to attach a number of customers to this brand in order to increase its sales. Branding also permits an advertising effort to be made to bring a special product to the attention of more consumers. From the point of view of consumers branding offers several advantages. It is a form of grading wherein certain qualities of a product are sold under one brand and others under other brands. Branding speeds shopping in that consumers may use the brand name as a substitute for personal knowledge of all the different quality characteristics they would have to know to choose properly from an ungraded lot of a product. The greater the integrity

of the processor or manufacturer the more reliable is the quality found under his branded products. In this sense branding is a substitute for grading and may be more feasible than grading in that branding would satisfy more members of the industry. So far as a packer or processor guarantees the quality of his brand, branding is a satisfactory way for consumers to differentiate quality.

#### **Brand-Price Relations for Frozen**

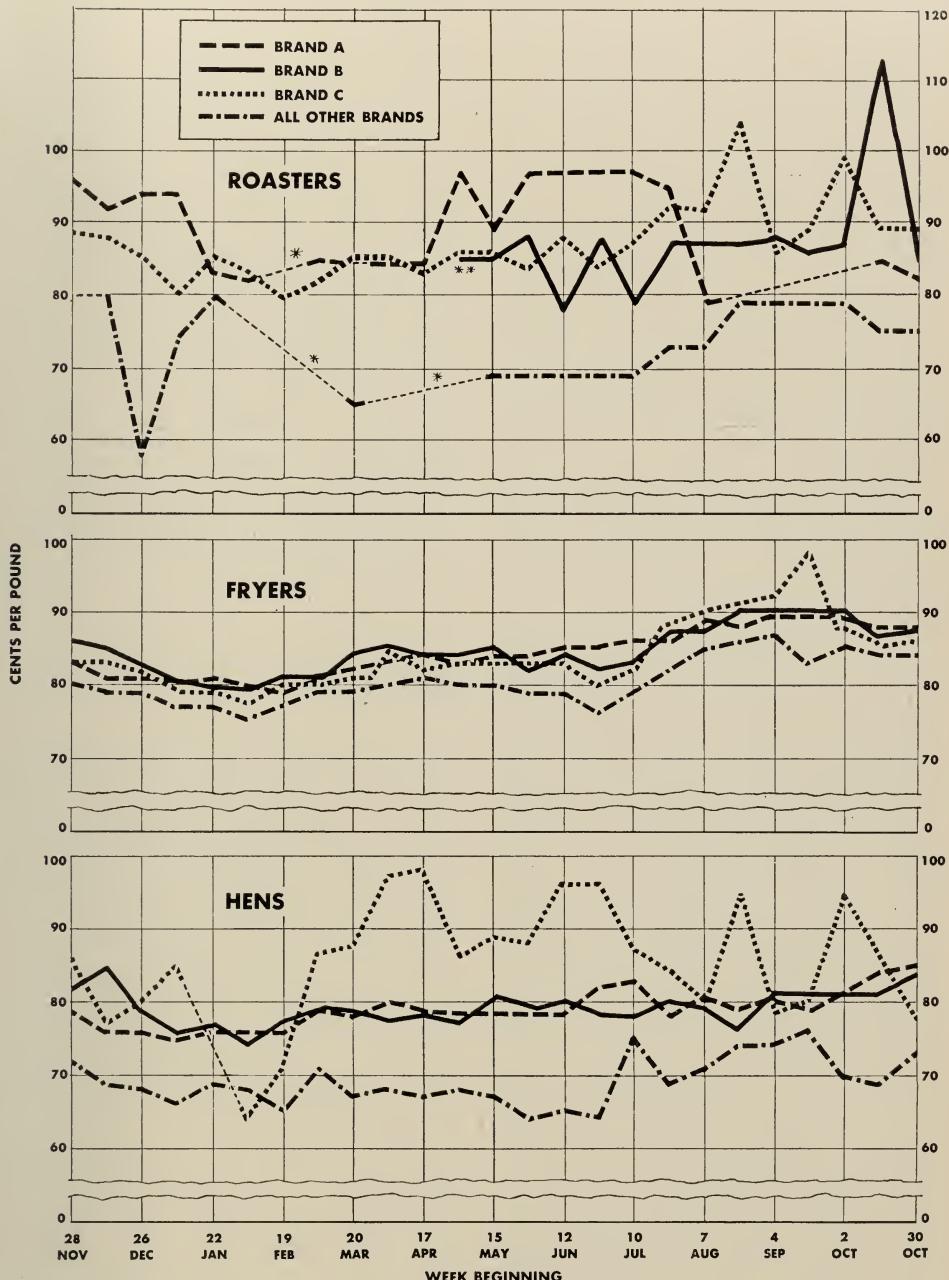
**Chicken Meat.** A study of price-quality relations for frozen chicken at retail offers a different situation than such a study for fresh chicken. Two reasons for this appear immediately: (1) There is less variation in the quality of frozen chicken available. (2) Most frozen chicken is sold as a branded product. The first of these has been discussed previously. Concerning the second, branding is to some extent a substitute for grading. There are about four brands of frozen chicken widely available in the Los Angeles area. Two of these are labeled as a U. S. grade A product. The other two brands compete with them closely and strongly. In addition, these branded products are either part of a line of frozen foods or a product given national advertising and distribution. These factors contribute to the maintenance of a uniform high-quality product in each brand.

The problem of quality deterioration between the time the chicken is packed and the time it is sold at retail would be a significant study since consumer confidence is involved. The level and uniformity of quality of fresh as compared with frozen chicken is one of the leading factors to be considered in the competition between the two forms. Unfortunately the grading of frozen chicken as part of this study was not feasible because of the cost: most brands are in an opaque package and have to be opened and thawed before grading.

<sup>18</sup> For a comparison between commercial and U. S. grades in the New York City market see: Lowenstein, Frank. A study of commercial and USDA poultry grades in relation to market acceptance. New England Res. Council on Marketing and Food Supply Proc. 1951: 35-41. 1951.

**Figure 14. Average Weekly Retail Prices for Frozen Cut-up Chicken, by Classes and Brands**

Los Angeles market, every other week, November, 1949–November, 1950



\* No data during period indicated by broken line.

\*\* No data for brand B before this date.

Source of data: Table 42 (Appendix).

In view of the above considerations an analysis of brand-price relations for frozen chicken in the Los Angeles area was included in the study. The average price per pound for three of the major brands and for the average of all other brands of frozen chicken is shown in figure 14. The variation in average prices among the different brands of fryers was quite small—well within the range of error which could be attributed to the sampling technique. For all practical purposes one may say that the average prices of the major brands of frozen fryers were the same. Furthermore, as shown earlier, the variation in prices shown among the sample stores for any one brand was also quite small when compared with the variation shown for fresh chicken.

Relatively few frozen roasters were carried or sold. The data in figure 14 concerning frozen roasters are of less significance than the data for frozen fryers or

hens. Brands A and B for frozen hens had almost identical prices and were less variable over time than brand C and all others.

The problem facing the customer in determination of quality of frozen chicken has been discussed previously. Even the U. S. grade A label is not full protection since it applies to the quality at the time of grading. However, it is likely that the concern of the packer for his brand reputation offers some protection to the customer. Usually the packers put up their second-quality products under a little-known brand name and offer them at lower prices. It would appear that with the type of product and type of competition existing for it, price is not a reliable guide to quality of frozen chicken. Most brands when considered alone are of uniform quality and when the customer finds a brand that is satisfactory, the lowest price for that brand is the safest guide to the best buy in this product.

## FACTORS ASSOCIATED WITH VARIATIONS IN CHICKEN-MEAT SALES

The four major variables in the retail marketing of chicken which this study analyzes are prices, quality, quantity, and merchandising practices. This section reports an analysis of their relations to the changes which occurred in weekly sales of chicken in the sample stores and in all stores in the area. Special attention is given to some of the factors affecting the competition between fresh and frozen chicken.

### Determination of Quantity Data.

Volume of sales was obtained for each type of chicken carried in each sample store for each week of the year investigated. This was obtained by personal contact with the meat-department manager or some person designated by him. A week meant the 6 or 7 days in which the store was open for sales. The quantity data were obtained originally in terms of *chickens sold*. This referred to the number of com-

plete chickens whatever the form of sale. No data were obtained on sales of chicken parts, either fresh or frozen. A certain error is possible in converting the data from numbers of chickens to number of pounds because of the differences in weights of birds in different seasons and differences in weights handled by each store. However, this has been noted whenever conclusions rest upon this factor. Chickens are (customarily) bought and sold by retailers by numbers rather than weight. Quantity sold therefore was much easier collected as numbers of chickens.

The possibility of both sampling and nonsampling errors in the quantity data must be acknowledged and explained. The sample design took price variability into account and used the optimum-type sample design for selecting the stores (see footnote 3, p. 12). However, it was not feasible to take variability in quantity

into account also. Therefore, a sample designed to measure prices quite accurately was also used to collect quantity data. The accuracy of the quantity data was not as great as the accuracy of the price data unless the variability in quantity among stores was the same as the variability in prices. Our data reveal these were not the same. For instance, only one A-size chain store was included in the sample because of the uniform price policy of the chain throughout the area. The prices in one store of this group accurately reflect the prices in all of them. However, sales of chicken in stores of this chain are not uniform.

The major source of nonsampling errors was in obtaining accurately the quantity sold for each week. Price and merchandising data were obtained by direct observation of the authors, but quantity data were given by the store manager or his representative. The accuracy of these reports was checked as closely as possible, but some errors undoubtedly crept in. Whenever possible bills of sale or delivery slips were inspected or used as the basis of the quantity report. Use of bills of sale did not correct for chickens bought in one week and held over until the next, or for chickens lost from spoilage. When sales slips were not available the memory of the manager was depended upon. The possibility of error in reporting frozen chicken sales was greater than for fresh chicken sales because of the manner of stocking and selling. Frozen chicken was usually stocked with other frozen products such as fruits and vegetables. The display case was usually filled several times each week, making a count rather difficult. If the display was large, the inventory at the beginning or end of the week was a significant item in terms of proportions of total sales. Every effort was made within the time available to contact the person stocking the frozen-food cabinet and to request that special attention be paid to recording the volume of

sales of the chicken items in such a way as to allow for differences in inventory.

**Variability in Quantity Sold.** There was a wide variety in the combinations of forms and classes of chicken meat handled by retail food stores in Los Angeles (table 3, p. 17) and a wide range in the quantities sold by different stores in one week and in the quantities sold by the same store week after week. There was much less variability from week to week in the total quantity of chicken sold in the whole area than in that sold in any particular group of stores.

The variability in quantities of chicken products sold in different stores in any one week is illustrated in table 14. The week selected was typical in this factor. Size of store was largely responsible for the volume of total chicken sales but not for the sales of any one class or form. It was explained previously that the correlation between total chicken sales and total store sales was quite high. However, there was a wide variety of ways store managers have of making up that total volume. Low sales of one form or class are usually compensated for by high sales of some closely competing form or class. Although there is a high correlation between total chicken sales and total store sales, the higher chicken sales in large stores are partly accounted for by a greater variety of forms and classes.

Variability in sales of chicken from week to week is of greater significance to a study of competition and to the poultry industry generally than variability among stores. Data concerning sales from week to week help to explain why consumers buy chicken rather than pork or lamb, or why a low price accompanied by an advertisement is associated with high sales in one period or store but not in another. Week-to-week variability in sales is caused by price or demand changes. It is these fluctuations in volume sold which create the most vexing problems to retailers and processors and which occasionally are reflected in sharp price changes at the

**Table 14. Chicken Sales: Number Sold in Each Sample Store  
by Form and Class**

Los Angeles market, week of March 20, 1950

Store no.	Fresh, dressed				Fresh, ready-to-cook			Frozen, cut up		
	Fryers	Roasters	Heavy hens	Light hens	Fryers	Roasters	Hens	Fryers	Roasters	Hens
1	..	..	..	..	40	..	..	96	..	12
2	48	6	30	..	..	..	..	12	..	..
3	175	24	..	..	18	18	..	48	..	..
4	..	..	..	..	30	5	12	24	..	..
5	..	..	..	..	120	..	..	46	..	..
6	120	..	36	72	54	..	..	72	..	..
7	60	..	..	30	..	..	..	45	..	..
8	..	..	..	..	10	..	..	22	..	18
9	75	50	35	75	72	..	..	32	..	12
10	80	..	..	36	20	..	..	80	..	12
11	72	..	48	36	18	..	..	70	..	..
12	..	..	..	..	..	..	..	36	6	6
13	..	..	..	..	65	20	24	299	15	24
14	8	2	6	..	..	..	..	10	..	12
15	366	52	24	..	..	..	..	30	6	1
16	24	..	24	..	3	..	..	60	0	6
17	..	..	..	..	175	..	12	43	..	5
18	..	..	..	..	264	..	468	24	..	..
19	50	..	..	225	100	..	..	42	..	6
20	60	..	24	..	..	..	..	12	..	..
21	6	..	..	..	..	..	..	..	24	..
22	60	..	15	..	..	..	..	23	..	..
23	..	..	25	..	40	..	..	58	..	5
24	..	..	..	20	..	..	..	7	..	1
25	18	..	9	..	..	..	..	12	..	1
26	104	..	24	18	..	..	..	12	..	..
27	18	..	..	..	..	..	..	36	3	3
28	18	..	6	..	..	..	..	6	..	..
29	12	..	3	..	..	..	..	6	..	..
30	24	..	24	..	..	..	..	20	..	..
31	..	..	..	..	12	..	..	10	..	2
32	..	..	..	..	..	..	..	18	..	..
33	16	..	18	..	..	..	..	12	..	..
34	10	10	6	..	12	..	..	3	..	..
35	..	..	..	..	6	..	2	13	..	2

Table 14 (Continued)

Store no.	Fresh, dressed				Fresh, ready-to-cook			Frozen, cut up		
	Fryers	Roasters	Heavy hens	Light hens	Fryers	Roasters	Hens	Fryers	Roasters	Hens
36	24	..	..	..	..	..	..	24	6	4
37	..	..	..	..	18	..	..	27	..	..
38	60	..	35	..	..	..	..	8	2	6
39	..	..	..	18	..	..	..	..	..	..
40	12	..	..	12	..	..	..	10	2	2
41	12	12	12	..	..	..	..	..	..	4
42	50	..	9	..	..	..	..	6	..	..
43	18	6	..	6	..	..	..	14	..	10
44	15	..	5	..	..	..	..	..	..	..
45	5	3	..	..	..	..	..	9	..	..
46	..	..	..	..	..	..	..	15	..	8
47	18	..	18	..	..	..	..	4	..	..
48	..	..	..	..	14	..	2	..	..	..
49	4	..	2	..	..	..	..	..	..	..
50	36	36	24	..	..	..	..	3	..	..
51	18	..	..	..	..	..	..	..	..	..
52	24	..	6	8	..	..	..	4	..	..
53	..	..	..	..	8	..	..	4	..	..
54	..	..	..	..	..	..	..	0	..	..
55	20	..	..	6	..	..	..	..	..	..
56	..	..	..	..	..	..	..	3	..	..
57	..	..	..	..	15	..	3	3	..	..
58	..	..	..	..	..	..	..	20	..	..
59	14	..	4	8	..	..	..	0	..	0
60	..	..	..	..	..	..	..	4	..	1
61	..	..	..	..	..	..	..	0	..	..
62	..	..	..	..	..	..	..	2	..	..
63	..	..	..	..	18	..	..	..	..	..
64	..	..	..	..	..	..	..	1	..	..

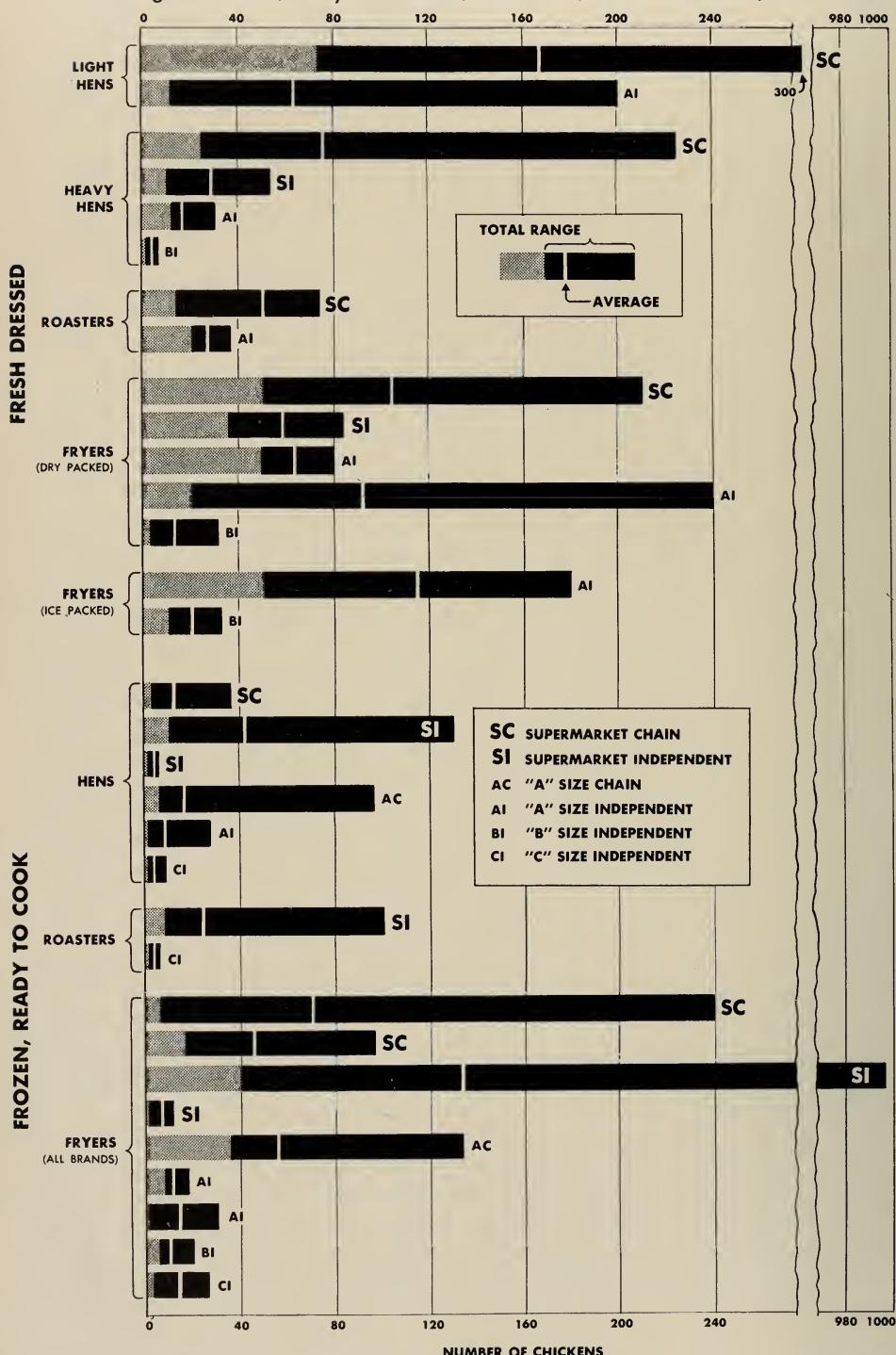
farm. An analysis of these fluctuations in volume sold is the major problem in this section of the study.

The variations in weekly sales in selected stores of different classes of chicken which occurred during the year of the study are illustrated in figure 15. The variations in sales in these stores were typical of those found in most stores. Not only was there a wide variation in sales

but a wide difference in the manner in which the variation occurred—sometimes even among stores of the same size and type. For instance, in one of the supermarket independents listed, fryer sales varied from 36 to 84 birds a week. This change occurred gradually throughout the year with no sharp changes occurring at any time. On the other hand, in one of the supermarket chain stores fryer sales

**Figure 15. Average of Weekly Sales with Range of Sales,\* for Chicken Meat, by Classes and Forms, in Selected Stores**

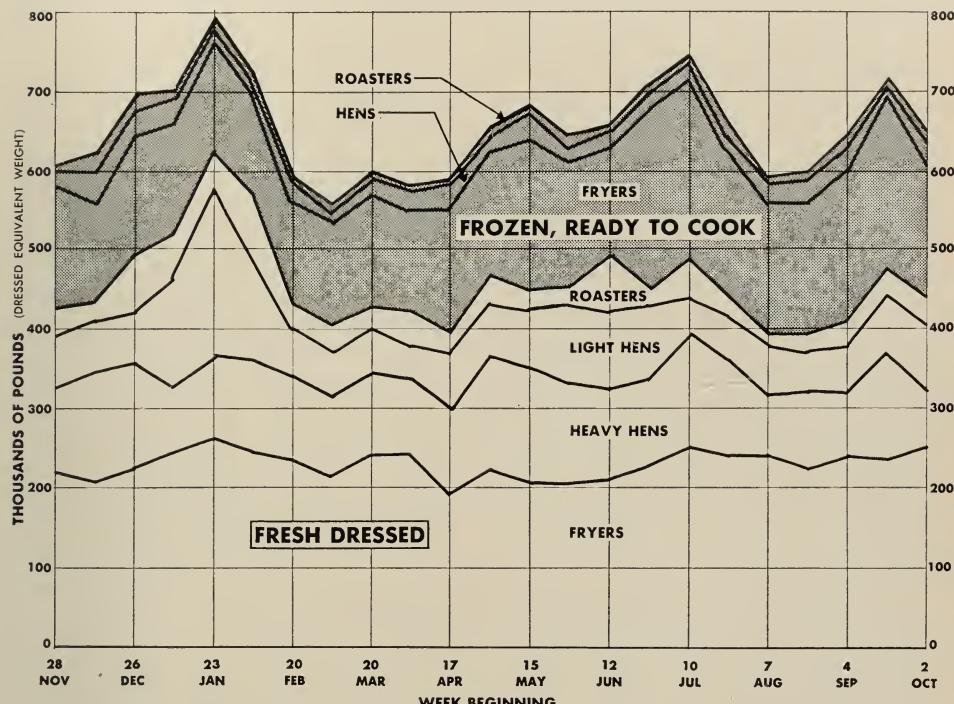
Los Angeles market, every other week, November, 1949–November, 1950



\* Range in the store selected includes the lowest and the highest weekly volume of sales for the period covered.

**Figure 16. Total Retail Food Store Sales of Chicken Meat, by Classes and Forms**

Los Angeles market, every other week, November, 1949–October, 1950



Source of data: Table 44 (Appendix).

varied from 50 to 210 a week; and the changes in sales in this store occurred suddenly, with typical sales being about 100 birds but certain weeks showing a sharp rise to 200 or more or a fall to the vicinity of 50 birds. The greatest variation occurred in the sales of frozen fryers in one of the supermarket independent stores. In this store sales of frozen fryers averaged 134 birds a week with the lowest sales at 40 and the highest at 996. In general, the smaller (B and C size) stores had smaller variation in sales and the larger (A and supermarket size) stores had the largest variations. Changes in sales of this type greatly affect total volume of store

sales and result from many factors.

In contrast to the wide variations in sales of chicken in individual stores, market-wide sales of chicken in retail food stores was rather stable. This is to be expected since changes in per-capita consumption do not occur suddenly. Therefore, the sharp changes in sales of chicken in different stores represented a shifting of customers among stores or a shifting of consumption among products. Probably both types of shifting occurred. The estimated total sales of chicken by classes in all retail food stores in the market from November, 1949, to October, 1950, is shown in figure 16.<sup>19</sup> Retail food stores

<sup>19</sup> Data in this figure and that following are based upon sales data from the sample stores expanded to represent sales of all stores. The expansion factors (the reciprocal of the ratio of number of sample stores of each size and type to the total number in the area) are as follows:

Supermarkets: Chain—17.18  
Independent—18.5  
A-size chain—243

A-size independent—25  
B size—76.92  
C size—274.3

in the Los Angeles market sell about 55 per cent of the total chicken consumed in the area. Therefore, variations in sales direct from farms, sales in retail live- and retail dressed-chicken stores and in restaurants and institutions should be considered to get the complete picture.

The volume of weekly sales of each class during the year can be contrasted with the total sales of all classes in figure 16. Sales of fresh fryers and meat hens were quite stable from week to week throughout the year. Sales of heavy hens were slightly higher in the summer months of May through July and sales of fryers were highest from July to October. Sales of light hens increased sharply in January and early February because of the large sale of hens being replaced by new laying stock. In the remainder of the year, sales of light hens were fairly uniform. Sales of roasters were quite uniform throughout the year.

The changes in sales primarily reflect changes in production of fresh chickens in the vicinity of the Los Angeles retail market. All the chickens produced have to move to market in the fresh form since there are practically no facilities for preserving a sudden increase in supply by freezing or canning. These increases in supply must move into consumption, and the only method is through changes in prices or merchandising emphasis. Hence, if the price of light hens is lowered to move the increased supply, producers of fryers and meat hens can expect to have their prices affected depending upon the degree of substitutability between them. However, this would not affect the volume of sales of fryers and meat hens.

Weekly sales of frozen fryers also showed some variation during the year. Lowest sales were 129,000 pounds during the week of April 3 and highest sales were 230,000 pounds during the week of June 26. These data show that sales of frozen fryers were highest in the summer months. This is explained on the basis of the ease of buying and storing frozen

chicken. These features become more important in the summer months. Total sales of all forms and classes of chicken showed an upward though erratic trend from March through October, 1950.

Two possible sources of error in the city-wide totals should be considered. These force some caution in drawing conclusions from the data. The first is a sampling error which tends to exaggerate the totals. For those types of stores in which the expansion factor is large (that is, A-size chain), the market-wide total is likely to be more accurate when the sample-store volume was about average than when it was sharply above or below average. This happened because increases and decreases from normal occurred in one or a few stores without being representative of changes that occurred in all stores. If a price change was in effect in a certain week, the market-wide total would be accurate only if the response of the customers in the sample stores were representative of the response of customers of all stores of that size and type. When only one or relatively few stores are included in the sample it cannot be assumed that this condition is fulfilled.

The other source of error is a non-sampling error and arises in the process of converting data from number of chickens sold to pounds of chicken sold. The error is of such a nature that the market-wide totals are probably somewhat exaggerated. Constant weights were used in making the conversion from number of chickens to number of pounds. The weights used for each form and class of chicken were as follows:

Dressed	Ready-to-cook
Fryers—3 pounds	Fryers—2.2 pounds
Roasters—4.5 pounds	Roasters—3.5 pounds
Heavy hens—4.5 pounds	Hens—3.2 pounds
Light hens—3.75 pounds	

Some stores consistently carried chickens of different average weight than those given above, but no size or type of store as a whole seemed to carry chickens different from those given. Occasionally

when an increase in sales volume was noted, the weight per unit sold was smaller than that given above. The true variations in total retail store sales of chicken were probably 10 to 15 per cent smaller than those shown in figure 16.

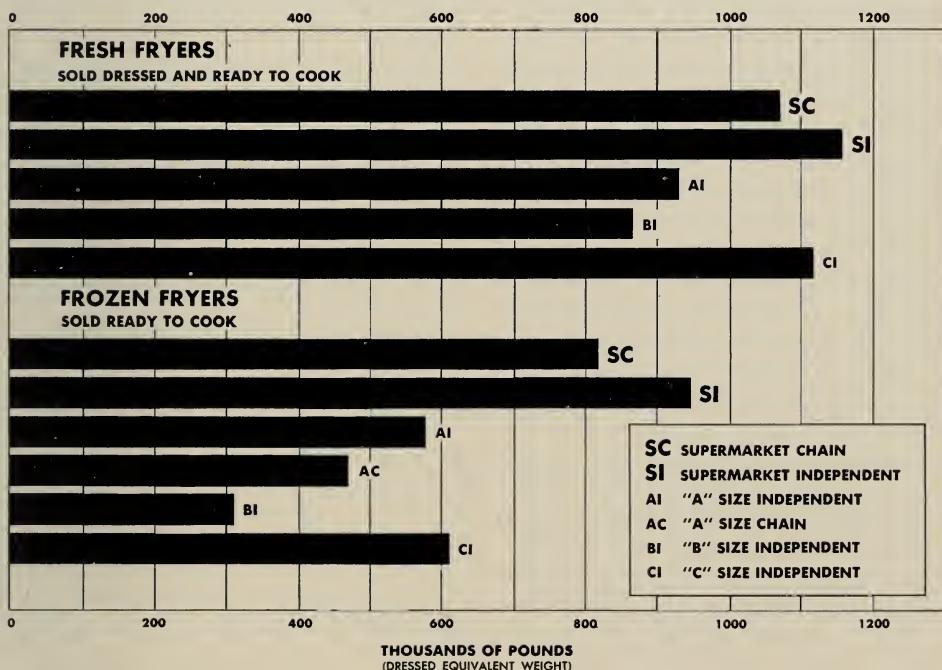
The relative importance of different sizes and types of stores in total sales of fryers only is shown in figure 17. The importance of the smaller-sized stores as outlets for fresh fryers is noteworthy. Although sales of fryers in C-size stores is small per unit, the number of such stores in the market is so great that their combined influence is greater than any other size or type. Among other sizes and types, the differences in total sales of fresh fryers was not great.

When considering frozen fryers, the larger stores handled the larger volume not only per unit but also in total for the market; C-size stores were in an intermediate position of importance.

**Method of Analysis.** Short-run (week to week) changes in volume of retail sales of any single product or line of products are the result of either price changes or demand changes. Since concern was not primarily with changes in over-all or market-wide volume of sales but rather with those in individual stores, the price effect on volume was considered as the price in one store *relative to* the average for stores of that size and type. Some increase in sales, then, was caused by the switching of some patronage from one store to another in response to relative prices. For those customers who shopped regularly at one store, a price change for one commodity was evaluated in two ways: (1) in terms of the reduction in price relative to what it was the week before or the last time the shopper noted it, and (2) in terms of prices for other meat cuts which the shopper considered close substitutes. These two aspects are

**Figure 17. Total Fryer Sales, Fresh and Frozen, in Retail Food Stores, by Size, and Type of Store**

Los Angeles market, every other week, November, 1949–November, 1950



Source of data: Table 45 (Appendix).

so completely subjective with each shopper and so difficult to check on that no attempt was made to measure or consider them. This helps to account for many of the variations in volume of chicken sales which are called "random" fluctuations—that is, those which were not associated with the economic variables studied.

Short-run changes in demand are caused by numerous factors whose influences from week to week are difficult to measure and difficult to explain. Only through a large number of observations will the sustaining influence of some factors reveal themselves. Any factor except price, which influences a shopper to buy a product, influences the demand for that product. Frequently changes in demand occur simultaneously with changes in price, and it is impossible to separate the influence of one from that of the other. Among the numerous factors influencing demand for chickens from week to week are: (1) the presence or absence of competing products, first other chicken products and then other meats, (2) the quality of the chicken meat under consideration, (3) the type and kind of advertising of the product during the week, (4) merchandising practices, such as the prominence, the appearance, and the wording used with the chicken display, (5) holidays and changes in the weather, (6) the reputation and general price policy of the store being studied, and (7) the random fluctuations in the number of people passing the store, their personal idiosyncrasies, and visitors to the area. Empirical data have been collected to study the relation between changes in weekly volume of chicken sales in the sample stores and five different factors. These were: (1) relative prices, (2) advertising, (3) quality, (4) prominence of chicken displays, and (5) appearance of chicken displays.

From these data the demand interrelations between various competing forms and classes of chickens were analyzed.

The multidimensional aspect of changes in demand and in consumption

should be emphasized at this time. While some shoppers respond to one factor alone in making a food selection, most shoppers probably respond to a number of influences which they do not consciously weigh or perhaps even recognize. Therefore, although the analysis indicates more or less definite relations between two variables, other variables are at work and will be analyzed separately.

The method of analysis used in this section is to show the gross relations between weekly changes in volume of retail sales of chicken meat and a number of other variables, one at a time. This permits the full influence of all other variables to enter the picture. The specific steps taken in arrangement of the data to achieve this analysis are explained below:

1. Weekly volume of sales, in terms of whole chickens, by classes and brands of chicken, were tabulated for each of the 64 sample stores for each date a visit was made to the store. Visits to collect data were made every other week for one year (26 in all). Therefore, if store 17, for instance, carried dressed fryers continuously during this period, 26 entries were made in chronological order each giving the total sales of fryers for one week. If any chicken product was carried less than eight times during the year, it was not listed. Some stores handling only one chicken meat product had only one series; others had as many as eight.
2. The simple average (mean) for each series was calculated. The entries in each series were then classified into five weekly sales categories as follows:
  - A, 0 to 50 per cent,
  - B, 51 to 90 per cent,
  - C, 91 to 110 per cent,
  - D, 111 to 150 per cent,
  - E, above 150 per cent of the average of weekly sales during the year. These categories appear on the horizontal axes of figures 18 through 32.
3. Data pertaining to quality, price, ad-

vertising, quantity sold, prominence, and appearance of the chicken displays were recorded opposite each entry. 4. Data pertaining to the selected variables were combined for all the entries in each weekly sales category, by size and type of store and by class of chicken, for presentation.

The disadvantages of the method used are: (1) It failed to isolate the effect of each variable associated with changes in volume of sales. Furthermore, many of the variables are not measurable by presently known techniques. One effect of this method was to leave large residual or "unexplained" variations. However, these variables seldom operate in isolation and the method used here gives results with more meaning to the trade than more elaborate statistical procedures. (2) The relations shown are carried along not only by action of the primary variable, but by interrelation among the variables considered. There is some interrelation between variables such as between price and advertising. Wherever possible, these factors are explained in the text. (3) Serial correlation between variables was not measured. It is known that the use of sales stimuli such as advertising and low price has progressively less effect as they are continued from week to week. Therefore, the effect of a change in price or prominence or other merchandising method was controlled somewhat by what happened to that product the week before. In most cases in this sample of retail stores the emphasis was shifted from one product to another from week to week. In such situations serial correlation was not a serious problem.

The advantages of the method used are: (1) It overcame the difficulty of the small errors in the quantity data. This problem was discussed previously as being one of the most difficult to cope with. However, by classifying the data into broad groups the effect of errors was minimized. For instance, if a store manager reported sales of fryers as 24 when actual sales were 19,

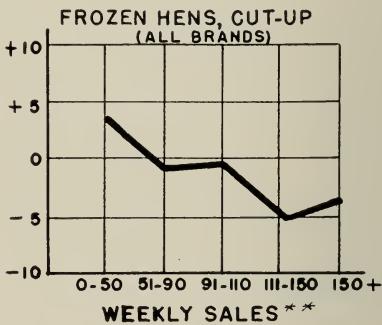
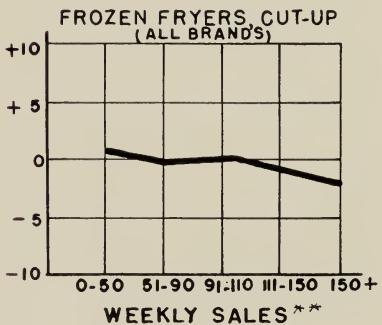
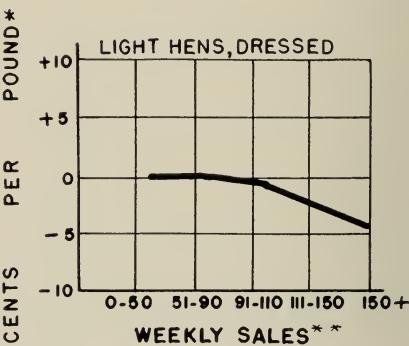
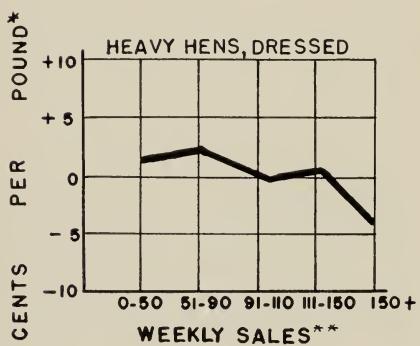
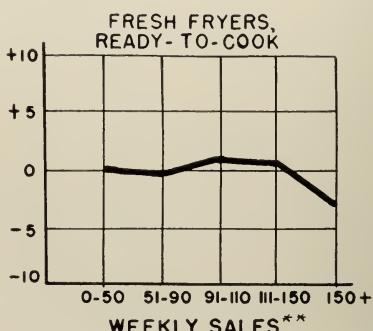
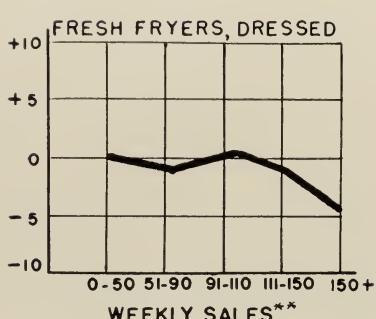
this report would probably get into the right relative category. Thus the effect of merchandising activity would be measured properly. (2) It was simple and appropriate to the problem. Factors affecting fluctuations in retail food sales are not well understood and are believed to be controlled somewhat by consumer whims or other psychological factors. Since some of these are not measurable it would give a false sense of security to use methods which would give mathematically precise answers to this sort of problem. (3) Significant and meaningful associations between the variables being studied can be drawn even though any one chart or table is insufficient to do this. This is done by making cross-classifications of the variables and comparing one set of charts with another. These relations use measurement data so far as it was possible to observe and record them.

**Price-Quantity Relations for Chicken Meat.** The experiences of the sample stores during the year studied in price-quantity relations are shown in figure 18. Considering all the stores that carried each class shown, weekly sales increased as price decreased below the average. This relation occurred, however, only when sales were above average. At average prices sales were unresponsive and occasionally diminished sharply. When prices were as much as 5 cents below average, sales increased by as much as 100 per cent. Retailers can use decreases in price relative to the average to influence sales, but they should expect to have occasional sharp decreases in sales when their prices remain about average.

The charts indicate that a reduction in relative price has to be of the magnitude of 5 cents a pound or more in order to be effective. This supports the argument made previously that slight changes in price in one store may cause shoppers who regularly patronize that store to shift their consumption from other meat to chicken but would not bring in many

**Figure 18. Price-Quantity Relations for Chicken Meat  
in Retail Food Stores**

Los Angeles market, 1949-1950



\* RELATIVE TO THE WEEKLY AVERAGE PRICE FOR EACH SIZE AND TYPE OF STORE.  
\*\* AS PERCENT OF THEIR OWN AVERAGE.

outsiders from other stores. However, the larger the price differential from the average the more regular customers will be shifted and the more nonregulars will

come in to take advantage of the "bargain." Increases in sales from average to 150 per cent or more of average from one week to another are caused by a

shift in the level of competition from the store as a whole to an individual commodity. This shift occurs when the saving promised is sufficiently large to overcome the inertia and cost of shopping at an unfamiliar store. This raises the significance of the use of advertising in influencing changes in sales. Advertisements are probably the major means of notifying shoppers of a lower price in an unfamiliar store. (See pp. 70, 74-76.)

The relation between price and quantity in this sample of retail food stores was about the same for each class of chicken meat considered. Sales of dressed fryers and light hens were more responsive to slightly reduced prices than were other classes. Price "specials" for all classes except frozen hens were observed throughout the year studied. Even though "specials" occurred more often for dressed than for cut-up fryers and for egg hens than for meat hens, the effects were about the same though slightly sharper for dressed than for cut-up fryers.

The association of price with quantity variations shown in figure 18 is significant but not striking. This hides the fact that there were wide differences in this association within different groups of stores in the samples. In general the managers of larger stores consciously manipulated merchandising variables under their control more than did managers of small stores. The same comparison was true, although to a lesser degree, of the action of chain-store managers versus independent-store managers. Apparently chain stores used fresh dressed fryers, light hens, and frozen fryers as price leaders, whereas the independents used cut-up as well as dressed fryers and heavy hens as leaders. The frequency of use of merchandising variables is to a large degree a measure of the kind of competition (price versus nonprice) used by any individual store. Therefore, within the 64 sample stores there was a wide variation in the frequency of use of merchandising variables and in their effect.

Price-quantity relations for various classes of chicken meat for the 11 chain-store supermarkets and the 12 independent supermarkets in the sample are shown in figures 19 and 20. Two interesting comparisons can be made from figures 18, 19, and 20. The first is between all stores and those having the most intensive merchandising activities (figs. 18 and 19); the second is between chain stores and independents (figs. 19 and 20).

The relation between price and quantity in the largest stores (supermarkets) is more striking but more erratic than in all stores combined. This is particularly true for dressed fryers and light hens—the two items of chicken meat most frequently selected for special attention. Sales in the larger stores rose to the higher levels when prices dropped. At the same time there are irregularities in the trend of relative prices as sales change from small to large, which indicate occasional exceptions to the rule or large unexplained variations.

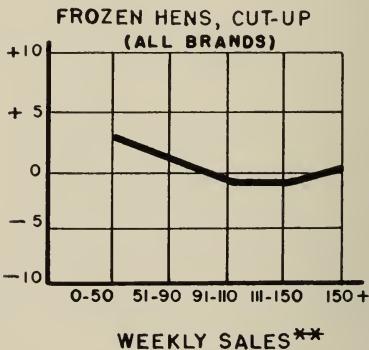
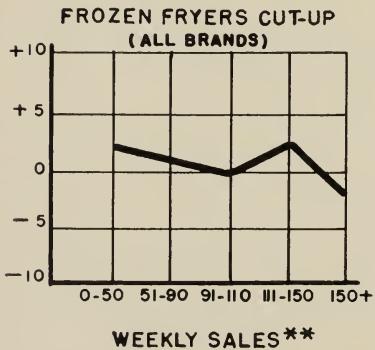
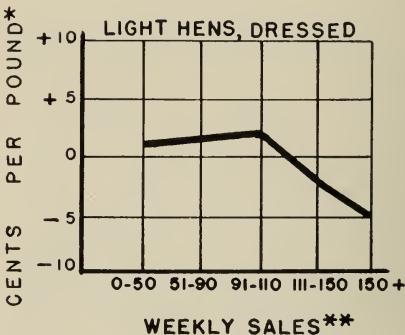
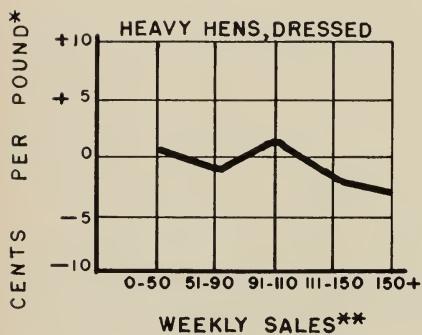
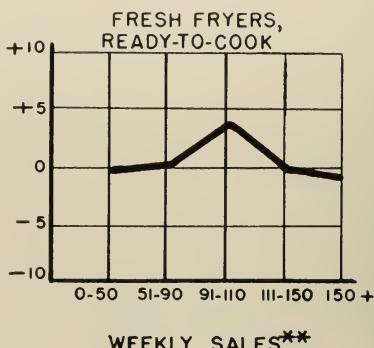
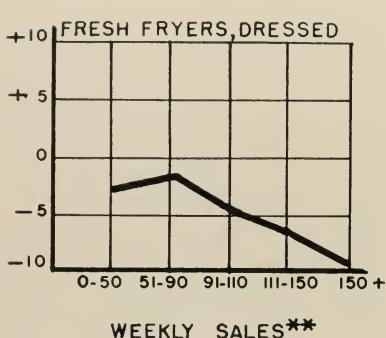
Chain stores have increased sales of ready-to-cook fryers even though they tend to hold the price up, whereas independents have used price reductions to increase sales. This could be caused by the fact that cut-up fryers are not often used for a price "special" and that during this period the independent stores did use price changes with this product.

Price-quantity relations for chicken meat in the smaller-sized stores were charted and studied but are not shown here. In general there was no relation, or only an erratic one, between these variables. One reason is that the smaller stores carried fewer items, so that the number of observations available for study was reduced. The main reason, however, is that price changes are not often used by the smaller stores in Los Angeles as a factor with which to influence sales. The variations in sales which occurred in the smaller stores were associated with some factors other than price.

It is apparent from figures 18 to 20

**Figure 19. Price-Quantity Relations for Chicken Meat in Chain-Store Supermarkets**

Los Angeles market, 1949-1950



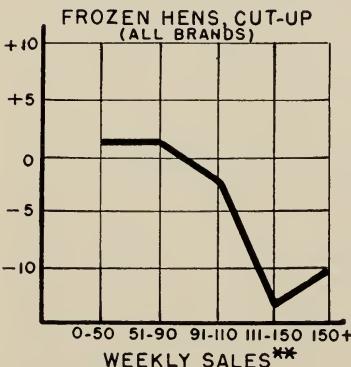
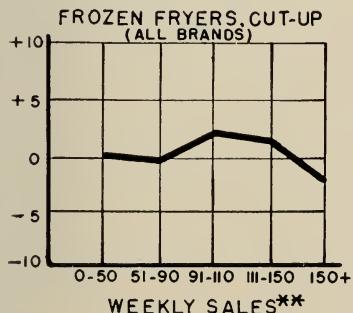
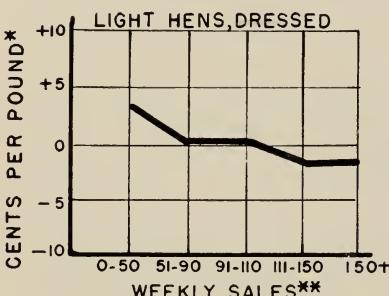
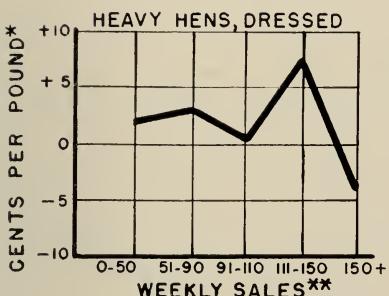
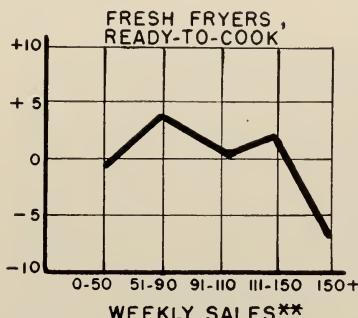
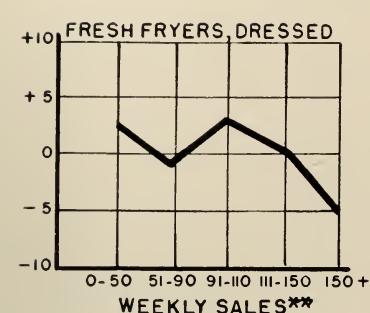
\*RELATIVE TO THE WEEKLY AVERAGE PRICE FOR EACH SIZE AND TYPE OF STORE.  
\*\*AS PERCENT OF THEIR OWN WEEKLY AVERAGE

that some factors in addition to price were operating in influencing changes in volume of sales since large variations in sales occurred with small or no reductions in price.

**Advertising-Quantity Relations for Chicken Meat.** Retail-food-store managers placed great reliance on the effectiveness of advertising in increasing sales. Many retailers commented that a

**Figure 20. Price-Quantity Relations for Chicken Meat in Independent Supermarkets**

Los Angeles market, 1949-1950



\* RELATIVE TO THE WEEKLY AVERAGE PRICE FOR EACH SIZE AND TYPE OF STORE.

\*\* AS PERCENT OF THEIR OWN WEEKLY AVERAGE.

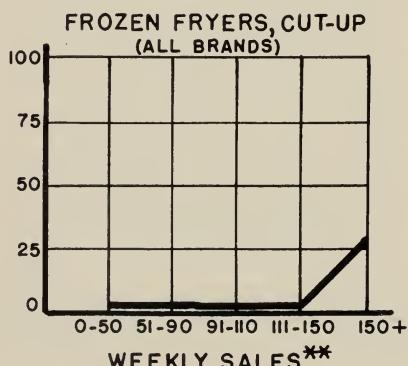
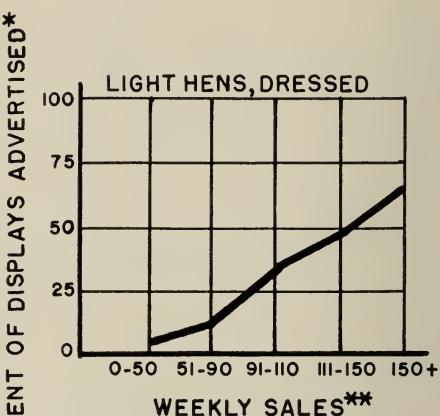
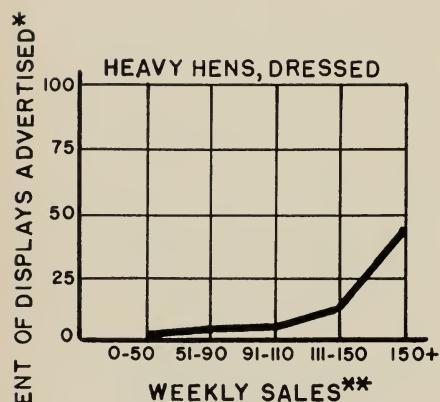
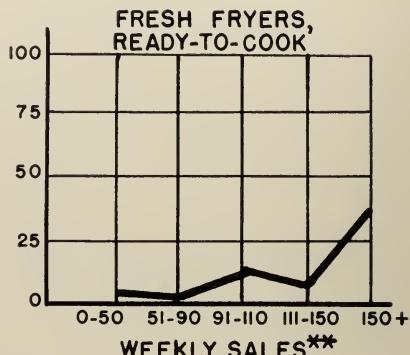
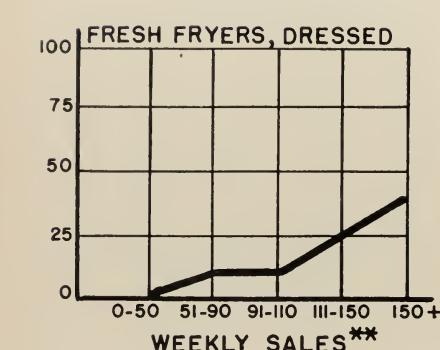
price change alone is slightly effective in increasing sales, an advertisement slightly more effective, but that they are most effective together. Hence the two are fre-

quently found combined in retail selling.

As is shown in figure 21, there was a positive association between frequency of advertisements and volume of sales for

**Figure 21. Advertising-Quantity Relations for Chicken Meat  
in Retail Food Stores**

Los Angeles market, 1949-1950



\* EXPRESSED AS A PERCENTAGE OF THE TOTAL NUMBER OF DISPLAYS OBSERVED WITHIN EACH OF THE FIVE WEEKLY SALES CATEGORIES.

\*\* AS PERCENT OF THEIR OWN WEEKLY AVERAGE.

all classes of chicken for nearly the entire range of weekly sales shown. The figure also gives a picture of the relative frequency of advertising for each class.

Light-hen sales in all stores increased almost directly and proportionately to the frequency of use of advertisements. When weekly sales volume was low (0 to 50 per cent of the average), 5 per cent of the displays were advertised, indicating that if the advertisement had a positive influence toward increasing sales some other factor had a much stronger negative influence. Only 68 per cent of the light-hen displays were advertised when sales were at the highest level. Some other factor must have been operating.

When sales were at the highest level about 60 per cent of dressed and of cut-up fryer displays, 72 per cent of frozen-fryer displays, and 57 per cent of heavy-hen displays were *not* advertised.

When sales of each class of chicken were above average, the percentage of the displays that had been advertised increased sharply. Retailers can expect sharp decreases in volume of sales occasionally even when an advertisement is used, but the more frequent use of advertisements was associated with sharp increases in sales volume. The situation is similar to that existing in the study of price-quantity relation: this is an analysis of factors which have a positive effect on sales but not those which have a negative effect. This is most strikingly illustrated in figure 21 for frozen fryers. Wide variations in sales occurred which cannot be accounted for by the percentage of the displays advertised. When advertisements were used, they were associated with the highest sales of the whole year.

This chart illustrates a situation mentioned previously: advertisements are used most frequently in pushing light-hen sales as compared with other classes. Dressed fryers are next in frequency followed closely by cut-up fryers. None were used for frozen hens. This difference in relative frequency of advertisements for

different classes is more striking in the relations existing in separate types of stores. The association of advertisements with quantity in separate types of stores may be studied in figures 22 and 23.

The frequency of use of advertisements in the supermarket, both chain and independent, is much greater than in all stores combined. In fact A- and B-size stores used advertisements so infrequently that no study of their effectiveness could be made. The higher frequency in larger stores is most notable for dressed fryers and light hens. It is also apparent that fewer advertisements were associated in the supermarkets with sales at a low level and more were associated with high-level sales than in all stores combined.

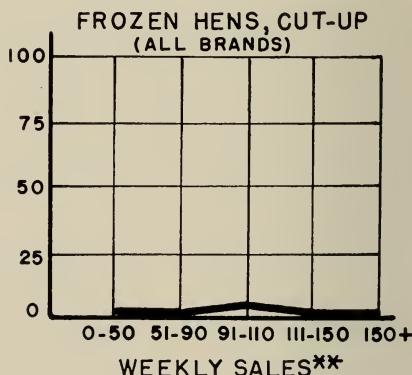
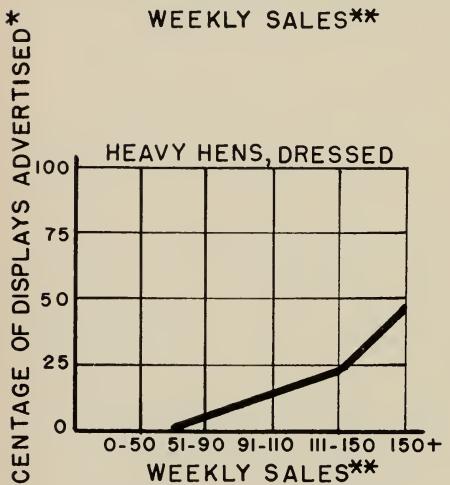
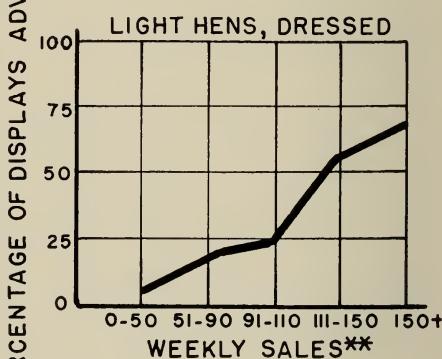
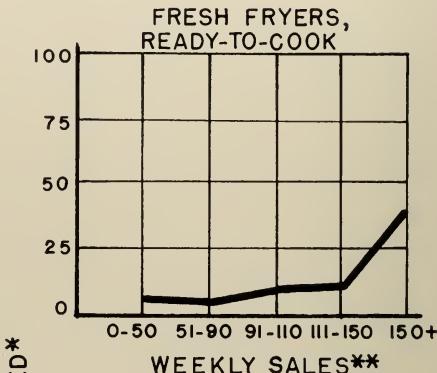
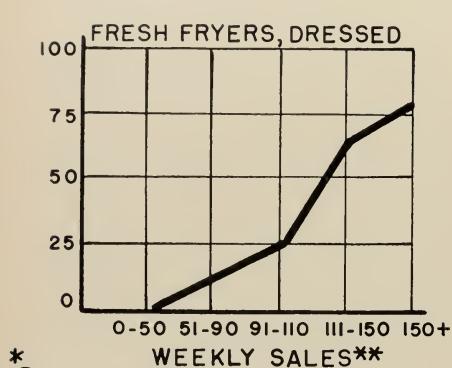
Why were advertisements used more frequently for dressed fryers and for light hens than for other classes? And why were advertisements more successful (more closely associated with changes in sales) in supermarkets?

Advertisements were used primarily to increase the number of customers coming into the store. Retailers frequently only break even or lose money on the advertised item. But, by getting more shoppers in the store to pick up the featured article, they expect that a certain number will buy the remainder of their purchases there.

The answer to the first question is also to be found in explaining the characteristics of items or products selected for promotion by an advertisement. First, the item must have a low price. It must be low in relation to other closely competing products; low in relation to its price in the recent past; and low in relation to that charged by the store's close competitors. Second, the item may have some other characteristics such as scarcity or earliness in the season so that it has special appeal. Next, the item should be one which the customer is ready to accept in the menu at home. Retailers do not have advertisements on the same items week after week but change them around to give customers variety.

**Figure 22. Advertising-Quantity Relations for Chicken Meat  
in Chain-Store Supermarkets**

Los Angeles market, 1949-1950

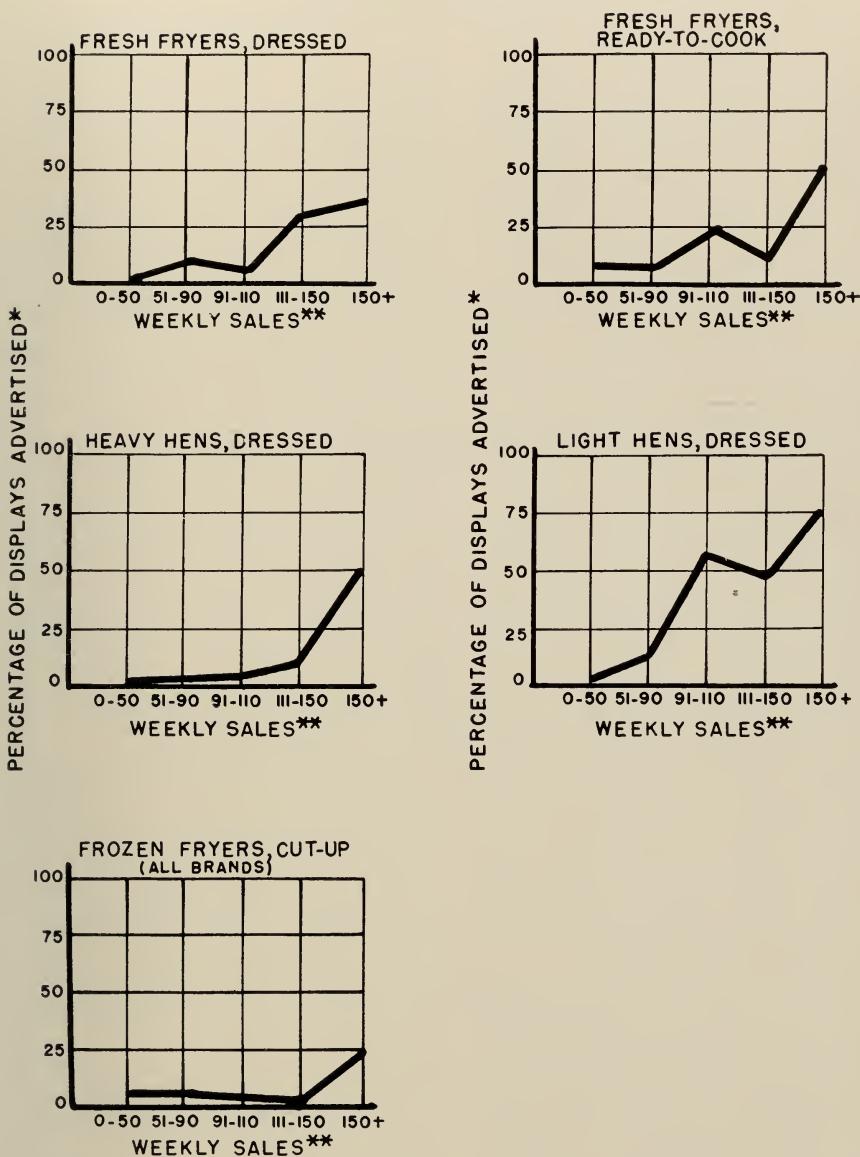


\* EXPRESSED AS A PERCENTAGE OF THE TOTAL NUMBER OF DISPLAYS OBSERVED WITHIN EACH OF THE FIVE WEEKLY SALES CATEGORIES.

\*\* AS PERCENT OF THEIR OWN WEEKLY AVERAGE.

**Figure 23. Advertising-Quantity Relations for Chicken Meat in Independent Supermarkets**

Los Angeles market, 1949-1950



\* EXPRESSED AS A PERCENTAGE OF THE TOTAL NUMBER OF DISPLAYS OBSERVED WITHIN EACH OF THE FIVE WEEKLY SALES CATEGORIES.

\*\*AS PERCENT OF THEIR OWN WEEKLY AVERAGE.

Dressed fryers and light hens seem to have most of the characteristics desired

for an advertised item. They are the lowest priced of all chicken-meat items and

are purchased often enough to be rotated with other meat items.

The answer to the second question is to be found in two facts: the supermarkets are the most price-conscious of all types of food stores in the city. An item featured in an advertisement by a supermarket is felt to be almost certain guarantee by the customer that the item is low-priced and probably a "good buy." The second fact stems from the first—this continuous attention to price-consciousness has given them a reputation for "good buys" which other stores do not have. The authors have noted many times that the use of a relatively low price and an advertisement is no guarantee to a retailer that his sales of chicken will increase. The use of an advertisement with low price is much more successful in a store with a reputation for "good buys."

In retail food circles in Los Angeles an advertisement is considered one of the most powerful promotional tools to be used to bring more persons into the store and increase sales. An advertisement represents an expenditure of time and money—a planned effort to control volume of sales. Why then did these sample stores, with their reputation for low prices on featured items, have a certain number of failures—have average or less-than-average sales with the use of advertisements? When sales in supermarket chains were only average, 25 per cent of the displays were advertised.

First, it is not certain that these advertisements were failures. All advertisements may have a positive effect but on these days some factor had such a strong negative effect the advertisement simply kept the negative effect from being overwhelming. It is also suggested that the so-called "failures" were partly the result of mistakes in judgment and timing by the retailer. Supermarkets provide intense competition for each other. The high proportion of shoppers using automobiles makes this competition intense even among stores that are not close to

each other geographically. It is possible for a retailer, who has to plan his featured items a week in advance, to misjudge the appeal that a certain item will have. If prices change quickly, his competitor may be able to underprice him slightly. The weather may change suddenly. Any of a number of unpredictable changes may make his judgment wrong. This is one of the risks involved in a highly competitive business field. It appears from this study that the managers of supermarket chain stores in Los Angeles can expect about 25 per cent of their chicken advertising to have little effect.

**Interrelation of Prices and Advertising.** The last two sections have shown the relation existing at retail between changes in price and changes in volume sold, and the presence or absence of advertising and changes in volume sold. It was stated previously that each of the above analyses is incomplete because of the interrelation between price and advertising. The frequency of advertisements in relation to the relative price of the item being advertised for the three major types of stores which used advertising is shown in table 15.

From 80 to 100 per cent of the advertisements observed were run when prices were below average as compared with 0 to 20 per cent run when prices were above average. There are some differences in this proportion for the different types of stores and for the different classes of chicken. For instance, advertisements for dressed fryers were generally associated with much lower prices than were advertisements for frozen fryers. The average size of the price reduction with an advertisement for fryers was much higher than that for light hens. This was because there is less "room" for a price reduction on light hens. They were usually sold at a lower markup than were fryers. A-size stores used sharper price reductions on advertisements for fryers than did the other stores, though they had fewer advertisements than the other sizes of stores

**Table 15. Frequency Distribution of Advertising by Relative Price Class for Different Classes of Chicken and Sizes and Types of Store**  
 Los Angeles market, 1949-1950

Relative price class, cents per pound*	Number of advertisements for:				
	Dressed fryers	Cut-up fryers	Frozen fryers	Heavy hens	Light hens
Chain-store supermarkets					
-12 and over.....	9	5	5	0	1
- 8 to -11.....	28	7	12	5	3
- 4 to - 7.....	13	6	5	4	9
0 to - 3.....	4	0	7	13	6
+ 1 to + 3.....	0	0	7	1	7
+ 4 to + 7.....	2	1	4	1	2
+ 8 and over.....	0	0	1	0	0
Independent supermarkets					
-12 and over.....	5	5	12	2	0
- 8 to -11.....	11	5	4	3	3
- 4 to - 7.....	3	8	7	2	14
0 to - 3.....	0	1	4	1	15
+ 1 to + 3.....	1	2	5	1	6
+ 4 to + 7.....	6	0	0	0	1
+ 8 and over.....	0	0	1	1	0
A-size independents					
-12 and over.....	24	0	1	2	1
- 8 to -11.....	5	0	2	3	1
- 4 to - 7.....	2	1	0	0	10
0 to - 3.....	4	0	3	1	11
+ 1 to + 3.....	0	0	0	0	3
+ 4 to + 7.....	0	0	0	0	1
+ 8 and over.....	0	0	0	0	0

\* Relative to the average for each size and type of store.

shown in table 15. They placed more dependence on service and regular customers than price for their patronage.

This table indicates that it is not feasible to isolate fully the effect of price or advertising alone on changes in volume since the two are used so closely together in actual merchandising activities. However, the separation which can be made shows significant results.

**Prominence-Quantity Relations.**  
 In addition to the factors considered up

to this time (price and advertising), promotional devices of a more intangible nature were considered in their relation to changes in chicken meat sales. Among those that could be translated into empirical data are the prominence, the appearance, and the quality of product in the store displays. This list is incomplete: it fails to evaluate such factors as sales talk by clerks, demonstration devices, and other factors used in "pushing" sales of a product. Applebaum has expressed the

appeal of promotional devices in this way:

When on display consumer foods are packed to create eye appeal insofar as possible or practicable. The manner in which an item is arranged, the space and position given to it, and the type of promotional material used for reinforcement are all influencing factors.<sup>20</sup>

All chicken displays observed by the authors in visits to the sample stores during this period were rated according to prominence, appearance, and quality or brand. Prominence ratings were A, B, and C; the criteria used were:

1. Ease of location by customer
2. Relative size of display
3. Its priority of location relative to other items

In other words, prominence was a measure of how large, how convenient, and how conspicuous was the display relative to other meat items. The A rating meant the highest degree in these factors, C the lowest.

The relation between prominence of displays and quantity sold for all the sample retail stores is shown in figure 24. These are market-wide averages; therefore, each small change is much more significant than it appears. The reason for the low degree of prominence-quantity association was that most of the food stores in Los Angeles do not use changes in prominence as a sales-promotion device for dressed chicken. The full extent of the prominence-quantity relation may not be evident here but the trend influence and the characteristics of the factor are definitely revealed. A study of the prominence-quantity relations for chicken meat for each of the different sizes and types of stores shows that a reliable association, either positive or negative, existed only in supermarket chains (fig. 25). With them a strong upward trend for almost all classes is seen. The association between prominence and

quantity in other types of stores was highly erratic but usually revealing of the trend of the relation, as is shown for independent supermarkets in figure 26.

In the chain stores the association is rather consistent throughout the range in sales for all classes shown. This indicates that this type of store is most conscious of this type of promotional device and used it effectively. There is undoubtedly an overlapping between the influence of prominence and other factors on quantities sold. One can say, however, that changes in prominence were an effective supporting sales device. Stores in other size and type classifications may also find it effective.

The relative level of prominence accorded each of the different chicken classes by chain-store supermarkets is also shown in figure 25. Light hens were given the most prominence, with dressed fryers next in line. Light hens were sold in much greater volume than heavy hens—this may account for the greater prominence of the former. The same relation was true for dressed as compared to cut-up fryers. Frozen hens were displayed least prominently.

**Interrelation between Prominence and Advertising.** Although there are some exceptions, prominence and advertising of retail chicken meat were definitely related (table 16). In general, a much higher proportion of the advertised displays were rated A in prominence than were those not advertised. This indicated that retailers were using changes in prominence in conjunction with advertisements and reductions in price to influence sales of chicken meat.

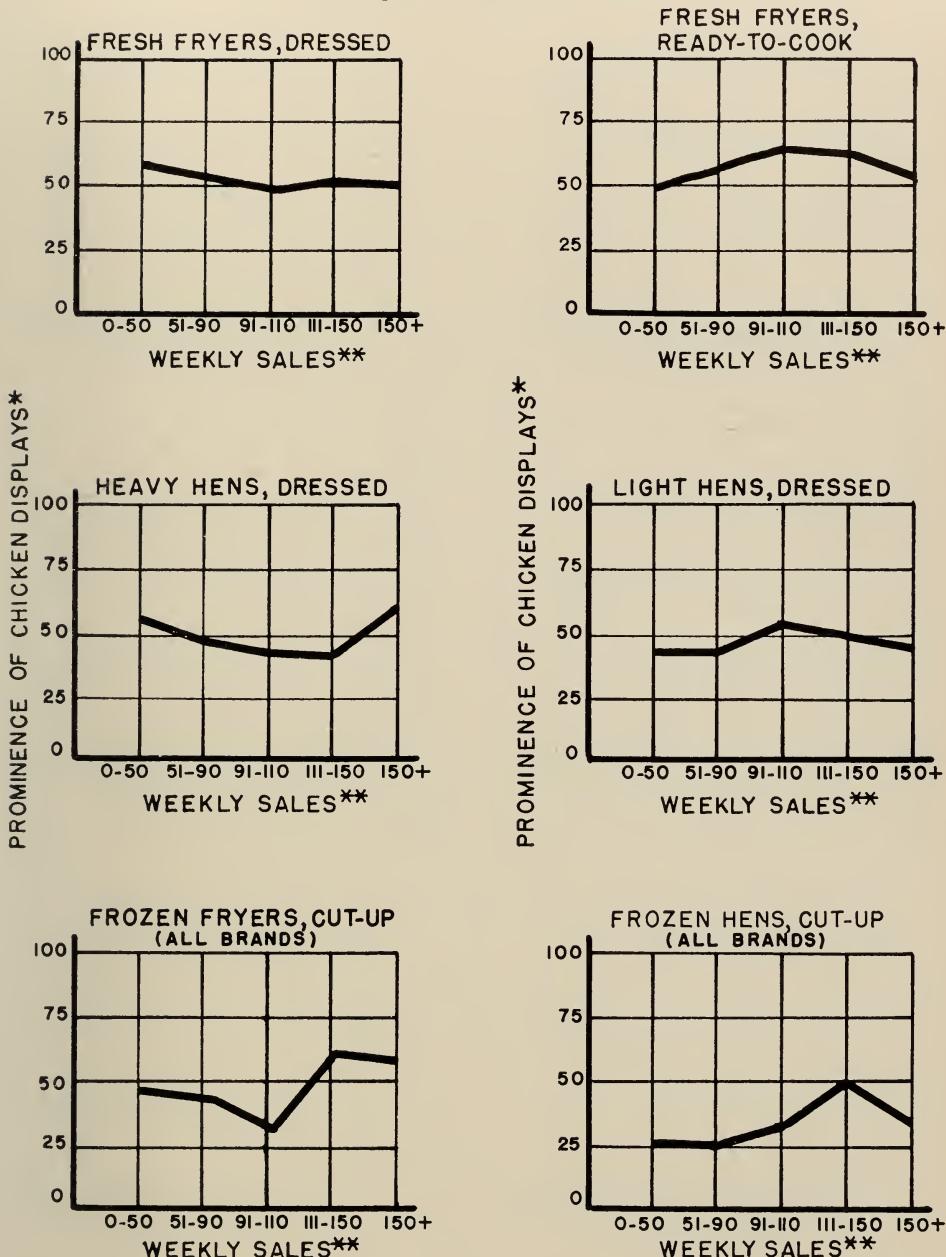
**Appearance-Quantity Relations.** Appearance ratings, like prominence ratings, were A, B, and C. The criteria used were:

1. Neatness of arrangement of display (no unsightly parts showing)
2. Use of enhancement (parsley, gar-

<sup>20</sup> Applebaum, William. Studying consumer behavior in retail stores. U. S. Dept. Agr. Marketing Research Workshop. Market Demand and Product Quality. p. 35. 1951.

Figure 24. Prominence-Quantity Relations for Chicken Meat in Retail Food Stores

Los Angeles market, 1949-1950

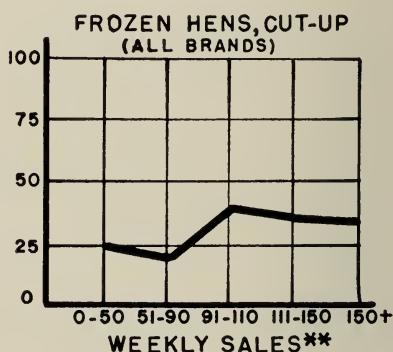
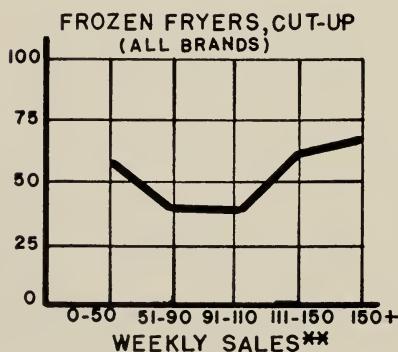
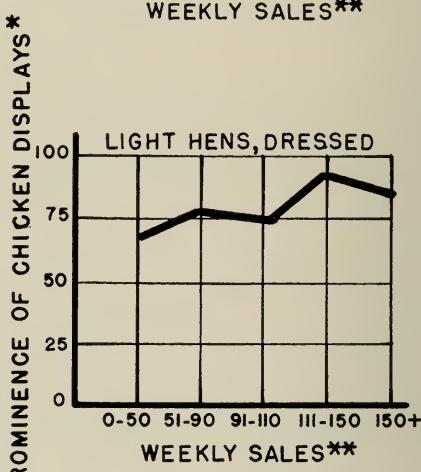
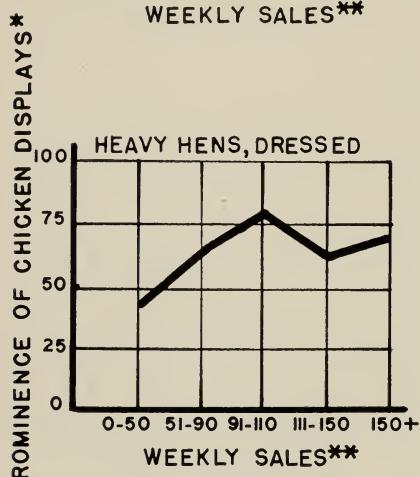
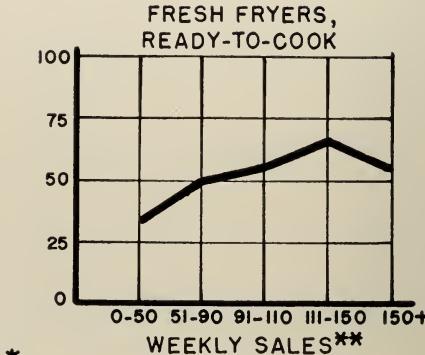
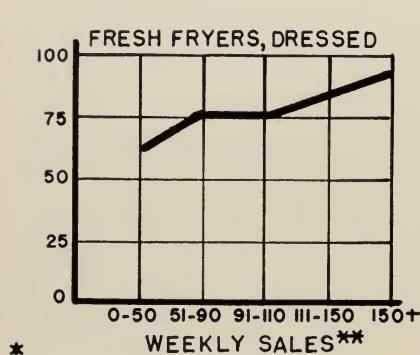


\* EXPRESSED AS A PERCENTAGE OF THE DISPLAYS, WITHIN EACH SALES CATEGORIES, WHICH WERE RATED "A" IN PROMINENCE. (SEE TEXT FOR DEFINITION OF PROMINENCE RATINGS.)

\*\* AS PERCENT OF THEIR OWN WEEKLY AVERAGE.

Figure 25. Prominence-Quantity Relations for Chicken Meat  
in Chain-Store Supermarkets

Los Angeles market, 1949-1950

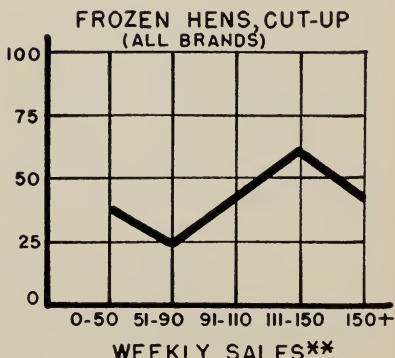
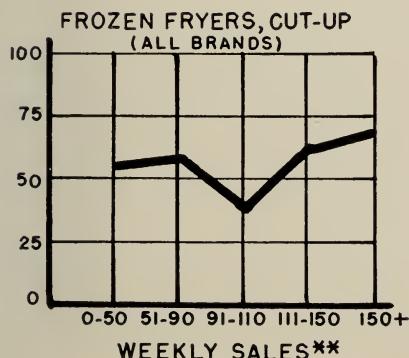
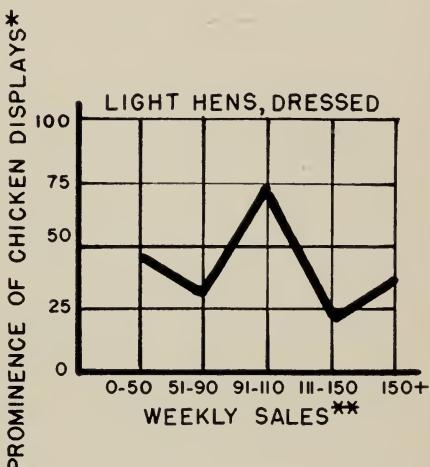
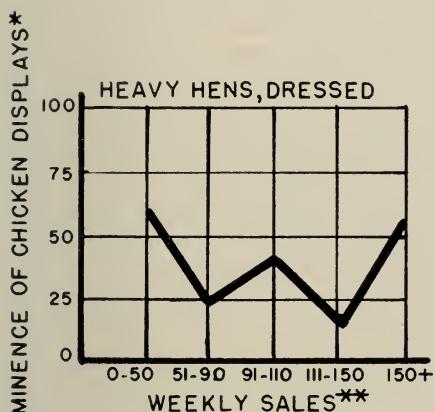
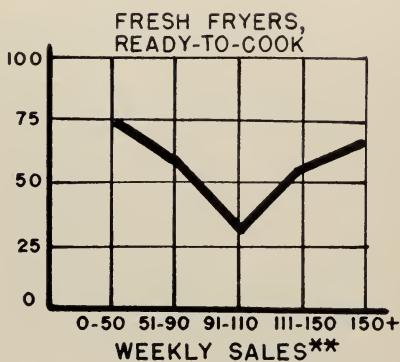
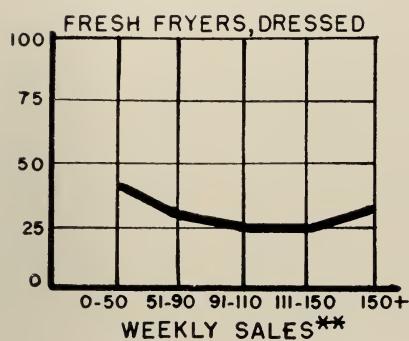


\* EXPRESSED AS A PERCENTAGE OF THE DISPLAYS, WITHIN EACH SALES CATEGORY, WHICH WERE RATED "A" IN PROMINENCE.

\*\* AS PERCENT OF THEIR OWN WEEKLY AVERAGE.

**Figure 26. Prominence-Quantity Relations for Chicken Meat in Independent Supermarkets**

Los Angeles market, 1949-1950



\* EXPRESSED AS A PERCENTAGE OF THE DISPLAYS, WITHIN EACH SALES CATEGORY, WHICH WERE RATED "A" IN PROMINENCE.

\*\* AS PERCENT OF THEIR OWN WEEKLY AVERAGE.

**Table 16. Prominence of All Displays and of Advertised Displays for Different Classes of Chicken and Sizes and Types of Store**

Los Angeles market, 1949-1950

Type of store	Proportion of displays rated A in prominence									
	Dressed fryers		Cut-up fryers		Frozen fryers		Heavy hens		Light hens	
	All	Advt.	All	Advt.	All	Advt.	All	Advt.	All	Advt.
Chain supermarket	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent
Chain supermarket	83	80	54	72	50	94	67	63	80	86
Independent supermarket	29	38	57	73	57	100	37	80	35	35
A-size independent	57	30	59	100	44	67	51	100	30	25

nish, or cardboard dividers separating chickens from other meats)

### 3. Freshness or bloom

The appearance rating was one of the eye appeal or attractiveness of the display. To some extent appearance was related to quality of the product.

There seemed to be a definite positive trend in the relation between appearance of display and volume of sales for all classes of chicken meat except heavy hens. The small changes shown reveal the situation for all stores, many of which pay little attention to making displays attractive. The trend of improvement in appearance for fryers of all kinds was almost continuous for the different volumes of sales, from lowest to highest (fig. 27). The most striking relation is for frozen hens. This must be discounted slightly because of the small number of displays examined.

As with prominence-quantity relations, the study of appearance as used by different-sized stores showed different results. The chain stores and particularly the supermarkets seemed to be more alert to the use of attractiveness of displays or more able to use it to their advantage. The relation between appearance and changes in volume sold in supermarket

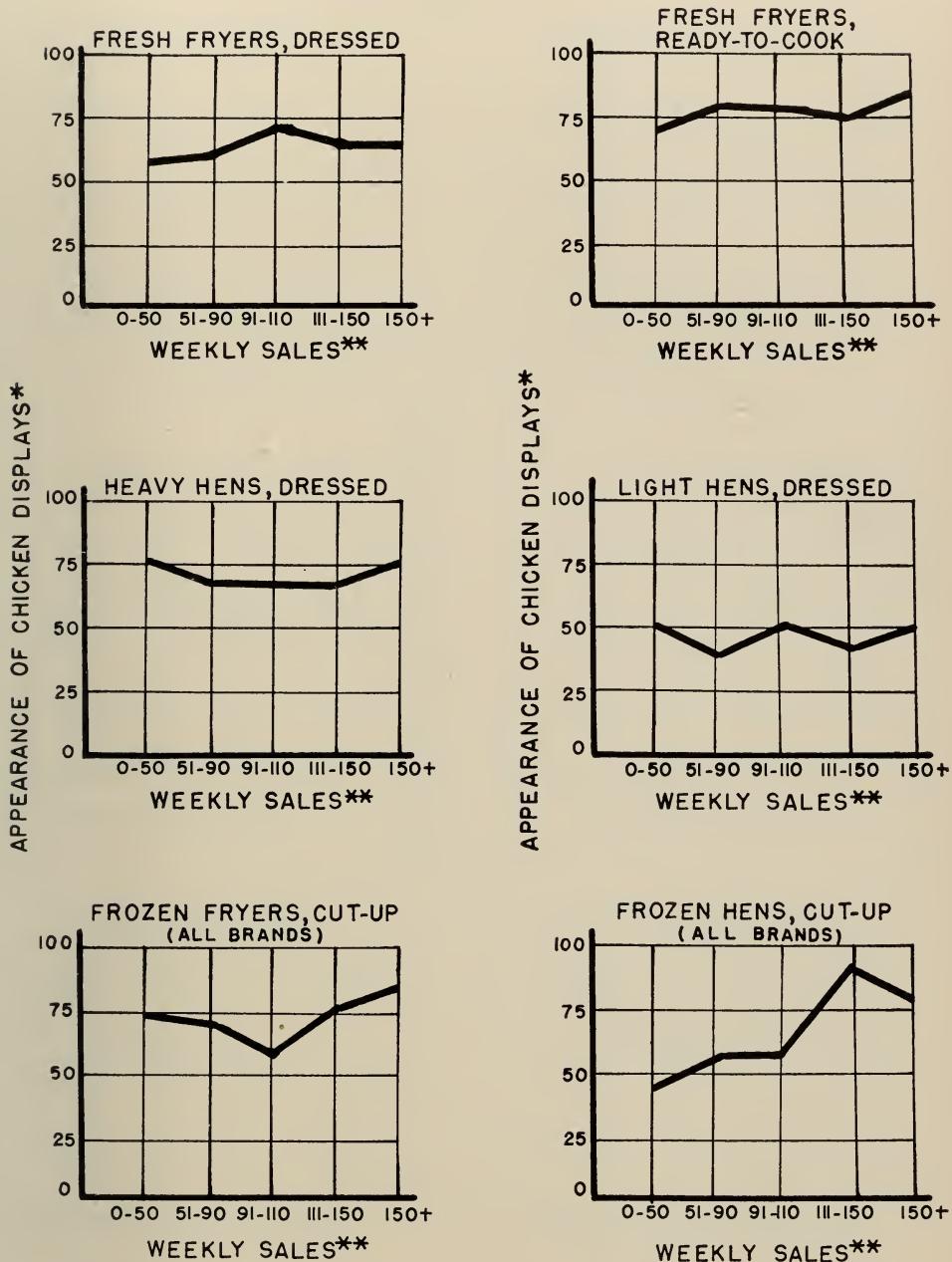
chains is shown in figure 28. The trends are nearly the same as for all stores combined but definitely more pronounced in the amount of the change. The relation between these two factors was less reliable in independent supermarkets (fig. 29) and became even less reliable in smaller-sized stores (not shown separately in the graphs).

Although attractiveness of display was considered a positive promotional step by most retailers, this aspect was varied less than was prominence or advertising. Each store had regular standards of appearance and these were not subject to much variation.

The absolute standards of appearance which stores maintained for different classes of chicken can also be studied from figure 27. Frozen chickens generally received a higher appearance rating than fresh chicken because of the packaging factor. Cut-up fryers rated slightly higher than dressed fryers, again, partly because of the packaging influence. Heavy hens rated higher in appearance than light hens, probably because the light hens are concentrated in price-conscious stores where less attention is paid to appearance and more to price as a merchandising appeal.

**Figure 27. Appearance-Quantity Relations for Chicken Meat  
in Retail Food Stores**

Los Angeles market, 1949-1950

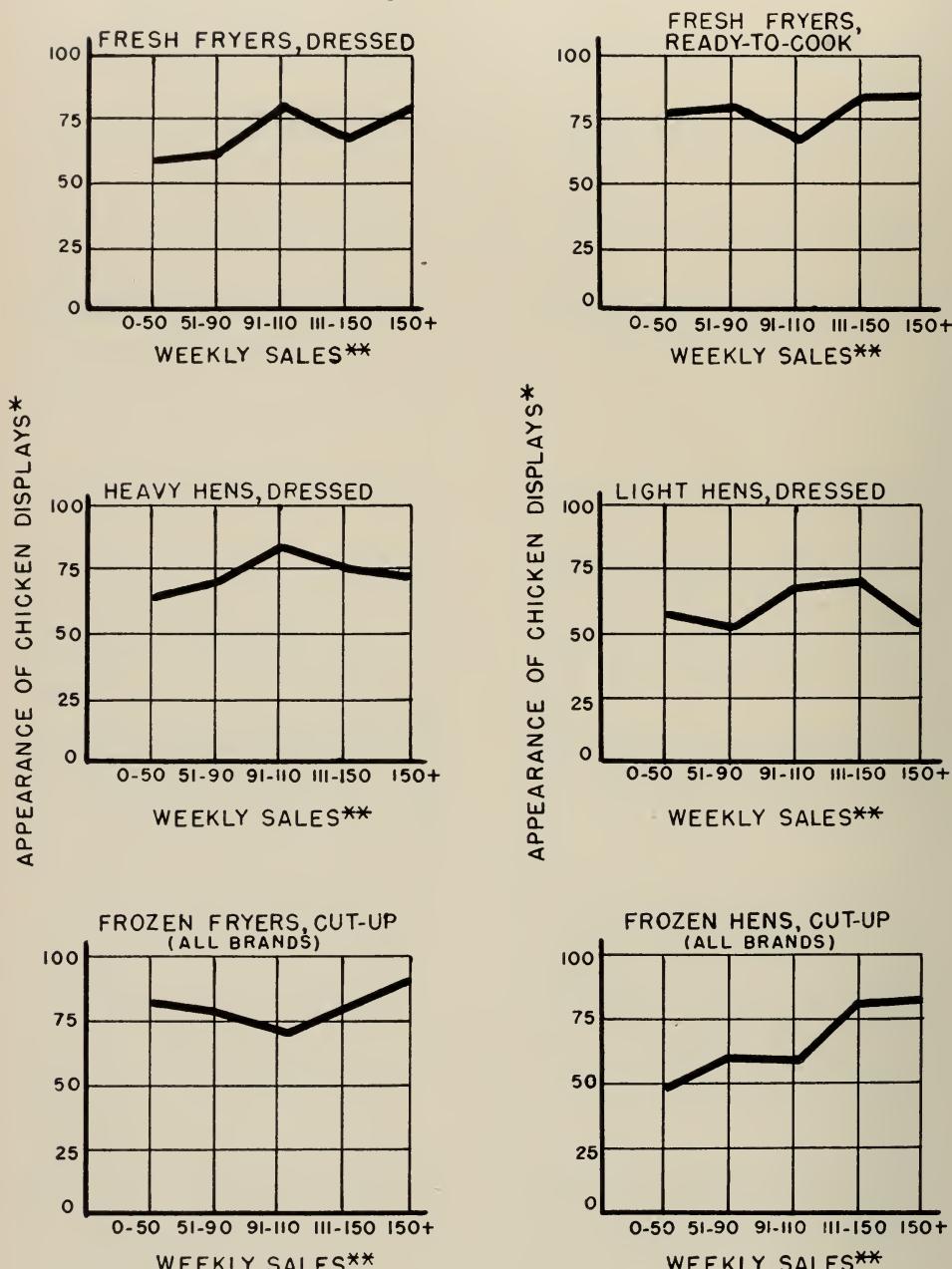


\* EXPRESSED AS A PERCENTAGE OF THE DISPLAYS, WITHIN EACH SALES  
CATEGORY, WHICH WERE RATED "A" IN APPEARANCE. (SEE TEXT FOR  
DEFINITION OF APPEARANCE RATINGS.)

\*\* AS PERCENT OF THEIR OWN WEEKLY AVERAGE.

**Figure 28. Appearance-Quantity Relations for Chicken Meat in Chain-Store Supermarkets**

Los Angeles market, 1949-1950

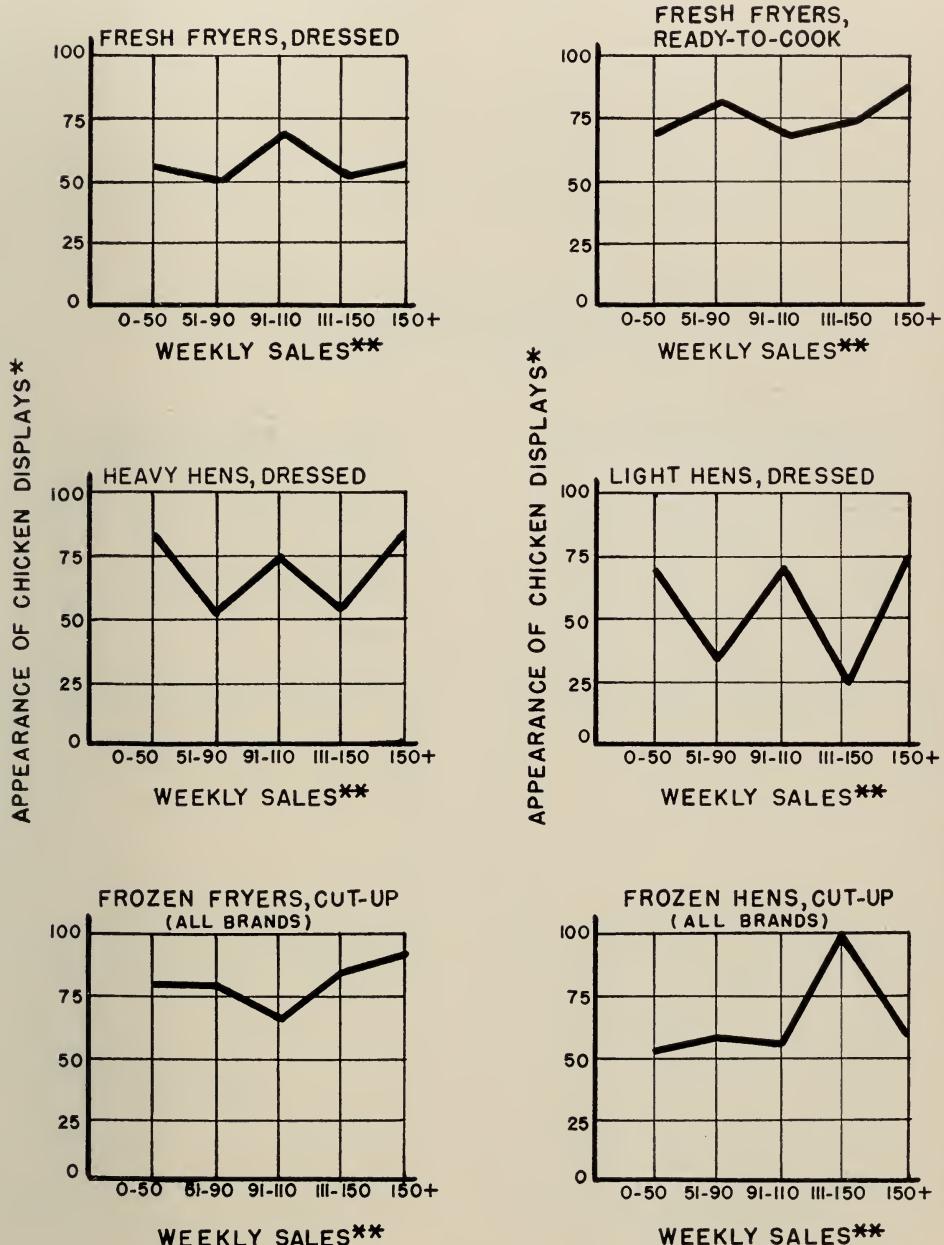


\*EXPRESSED AS A PERCENTAGE OF THE DISPLAYS, WITHIN EACH SALES CATEGORY, WHICH WERE RATED "A" IN APPEARANCE.

\*\*AS PERCENT OF THEIR OWN WEEKLY AVERAGE.

**Figure 29. Appearance-Quantity Relations for Chicken Meat  
in Independent Supermarkets**

Los Angeles market, 1949-1950



\* EXPRESSED AS A PERCENTAGE OF THE DISPLAYS, WITHIN EACH SALES  
CATEGORY, WHICH WERE RATED "A" IN APPEARANCE.

\*\* AS PERCENT OF THEIR OWN WEEKLY AVERAGE.

**Quality-Quantity Relations.** Quality ratings were made of fresh chickens by grading the displays according to United States Department of Agriculture standards; frozen chickens were not graded but described by brand.

The influence of quality of chicken meat on volume of sales is another in the promotional realm. It has already been remarked that the quality of displays entered into making of the appear-

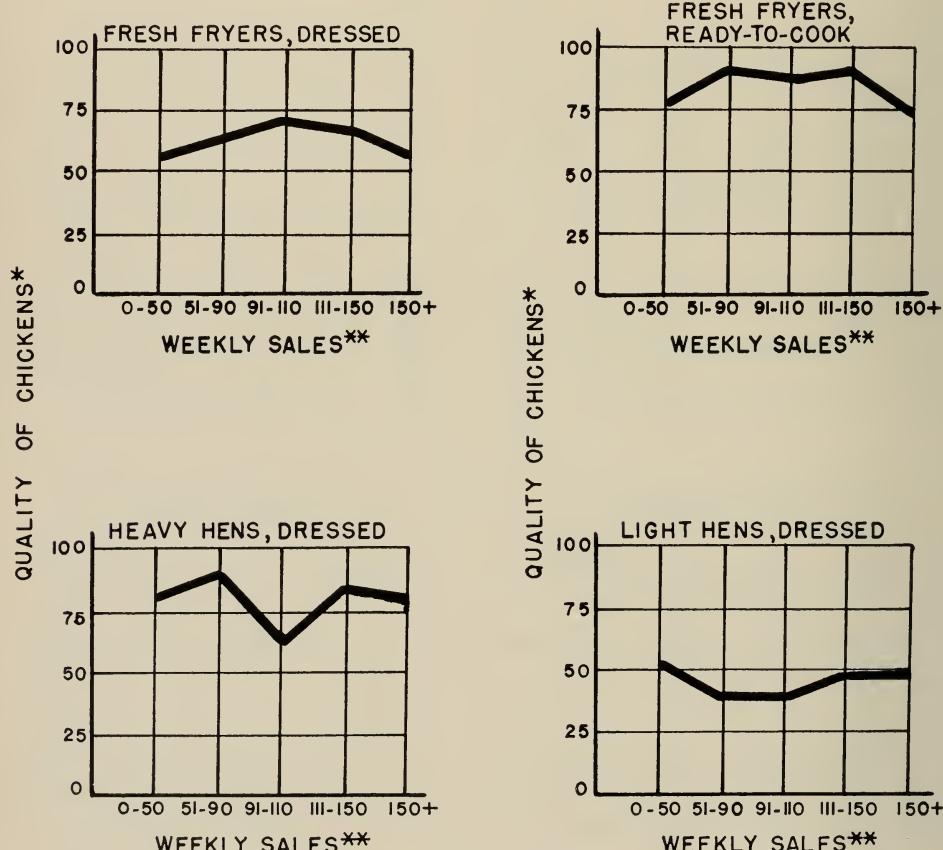
ance rating. Since quality is also related to price, there was an overlap in the influence of quality with the influences of appearance and of price charged.

The relation which existed in the sample stores between quality of chicken displays and relative sales volume is indicated in figure 30. Only fresh chicken displays were rated as to quality.

Quality of fryer displays was higher when sales were about average than when

**Figure 30. Quality-Quantity Relations for Chicken Meat at Retail Food Stores**

Los Angeles market, 1949-1950



\* EXPRESSED AS A PERCENTAGE OF THE DISPLAYS, WITHIN EACH SALES CATEGORY, WHICH WERE RATED U.S.D.A. GRADE A.

\*\* AS PERCENT OF THEIR OWN WEEKLY AVERAGE.

below or above average. The lower quality with high volume of fryers was important because some stores stimulated high sales with low prices and advertising but at the expense of quality. Low quality was associated with low sales because of slow turnover. Quality of fryers appeared to be kept relatively high at normal volume of sales.

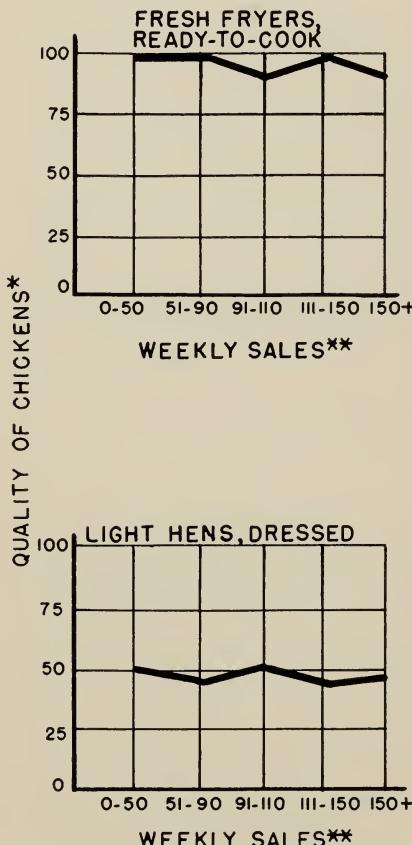
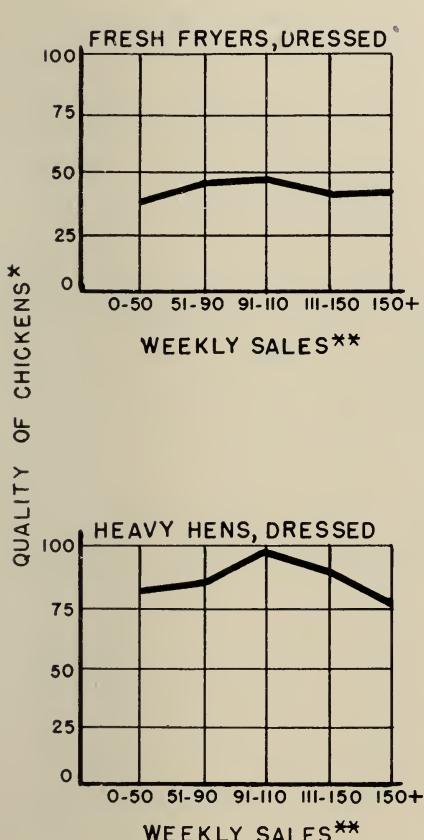
The relation between quality of chicken and quantity of sales for chain and inde-

pendent supermarkets is shown in figures 31 and 32. As the size of store became smaller, this relation became less reliable and more erratic.

Further comparisons in the absolute level of quality between different classes are possible from these figures. In chain stores and independents, for all levels of sales volume, light-hen displays were of lower quality than heavy-hen displays. In chains, a much higher percentage of

**Figure 31. Quality-Quantity Relations for Chicken Meat in Chain-Store Supermarkets**

Los Angeles market, 1949-1950



\*EXRESSED AS A PERCENTAGE OF THE DISPLAYS, WITHIN EACH SALES CATEGORY, WHICH WERE RATED U.S.D.A. GRADE A.

\*\*AS PERCENT OF THEIR OWN WEEKLY AVERAGE

cut-up-fryer displays graded A than did the dressed-fryer displays. Among independents, there was little difference in the quality of fryer displays.

#### Store Price Policy and Variations

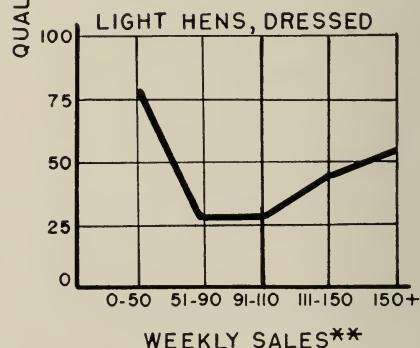
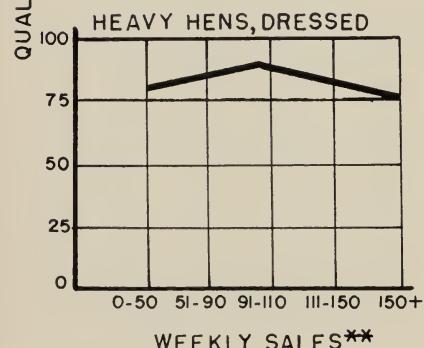
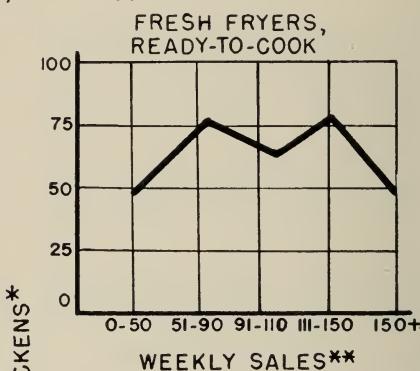
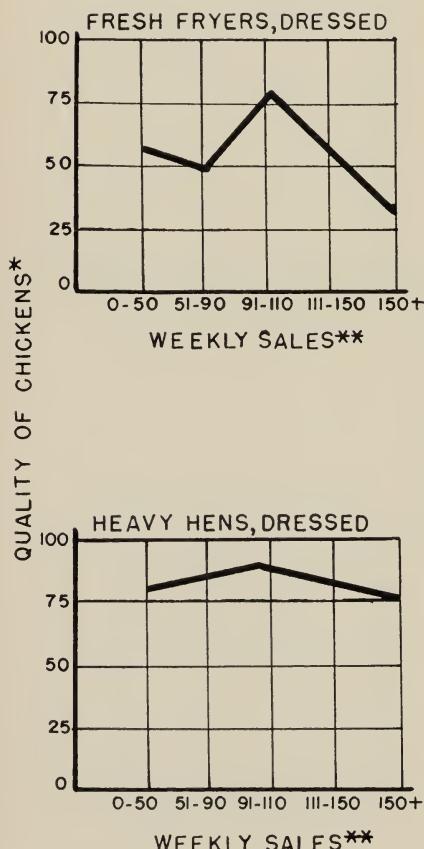
**in Sales.** No data were available to relate definite volume fluctuations to the price policy of each sample store. But a general relation can be noted.

Stores placing the emphasis on service-type competition had small and gradual fluctuations in volume of chicken sales

from week to week. The opposite was true of stores emphasizing price competition. This was primarily because the service-type stores did not employ price changes, advertising, quality, and merchandising practices to increase their volume of sales sharply at any one time. It was the opinion of the managers and owners of service-type stores that their best opportunity for profit lay in retaining the patronage and confidence of a definite group of shoppers rather than

**Figure 32. Quality-Quantity Relations for Chicken Meat in Independent Supermarkets**

Los Angeles market, 1949-1950



\*EXRESSED AS A PERCENTAGE OF THE DISPLAYS, WITHIN EACH SALES CATEGORY, WHICH WERE RATED U.S.D.A. GRADE A.

\*\*AS PERCENT OF THEIR OWN WEEKLY AVERAGE.

in depending upon the patronage given by a shifting or different group of shoppers each week. Therefore, the variations which did occur in volume of sales of chicken in the so-called service-conscious retail stores were not subject to the same sort of analysis as those which occurred in the so-called price-conscious type.

## COMPETITION AMONG CLASSES OF CHICKEN MEAT

What effect do variations in the volume of sales of dressed fryers have on volume of sales of frozen fryers or on heavy hens or other closely competing chicken meat? The problem of interproduct competition within retail food stores is faced by every retailer and wholesaler of food products. If a retailer knows how closely competing different products are he can plan merchandising programs with more assurance of success and with less waste. He knows that increases in sales of one product result in some shifts in buying—consumers will buy less of a closely competing product and more of a complementary product.

In this section the weekly sales data collected from the sample stores are examined to determine the competitive relation between the major classes of chicken meat. *A priori* reasoning would lead to the conclusion that the different forms and classes of chicken meat are fairly close substitutes for each other—at least closer, for instance, than chicken meat is for beef or fish.

A measure of the substitutability of poultry meat in general with other meats was made in budget studies of household expenditures by the United States Department of Agriculture.<sup>21</sup> This study showed a high degree of substitutability between meats and poultry. Families whose meat consumption was less than 75 per cent of average consumed poultry at a rate 190 per cent of average. At the same time families whose meat consumption was

Nearly all the week-to-week changes of sales volume in service-conscious stores were the result of the influence of factors which were not measured. Some supermarket independents were price-conscious stores and some were service-conscious. This accounts for some of the erratic fluctuations in figures 26 and 29.

above 125 per cent of average consumed poultry at a rate of only 46 per cent of average.

The method of analysis used in this section is somewhat similar to that used in the previous section (Factors Associated with Changes in Volume of Chicken Meat Sales). The major difference is that a number of variables, including sales of the major forms and classes of chicken meat, were studied using dressed, dry-packed fryers as a base. Dry-packed fryers were selected because this product appeared in more stores than any other class or form of fresh chicken meat and because its volume of sales was higher than any other class. The specific steps in preparing the data for analysis were as follows:

1. The data for each sample store which carried dressed, dry-packed fryers during the year were segregated.

2. The simple average of weekly sales of dressed, dry-packed fryers was calculated for each store. The sales volume for each of the 26 weeks in which a visit was made to each store was then classified into one of six weekly sales categories in relation to the average as follows: Those volumes which were zero when this fryer product was not carried. Those volumes which were 0 to 50 per cent, 51 to 90 per cent, 91 to 110 per cent, 111 to 150 per cent, and above 150 per cent of the average for the year. These categories appear on the horizontal axes of figures 33 through 35.

<sup>21</sup> Clark, Faith, and Beatrice Vaccara. Meat: variations in consumption and interrelationships with other foods. U. S. Bur. Human Nutr. and Home Econ. Commodity Summary 11: 1-30. 1950. (Processed.)

3. Data pertaining to relative quantity sold, quality, prominence, appearance, and price were recorded for the sales of dressed, ice-packed fryers, cut-up fryers, frozen fryers, heavy hens, and light hens for each of the weeks of six sales categories listed in step 2 above. The tabulation of the data then permitted one to study the sales and merchandising practices for heavy hens in store 25, for instance, on the dates when dressed fryer sales were at any particular level.

4. Data pertaining to the selected variables were then combined for presentation for all the entries in each sales category.

This method of analysis, then, was designed to reveal how sales volumes of different chicken meat products varied in relation to each other within each sample store and to reveal the factors associated with those variations. Only gross relations are shown. No attempt was made to isolate the effect of one variable because the weekly data made this impracticable.

One of the effects of this procedure was to reduce the size of the sample—the number of stores in which the comparison could be made. Stores which carried only one chicken product, such as frozen fryers, were thereby eliminated. In general, this analysis covers data from the larger stores in the sample. In spite of these limitations it appears useful to present the picture of interproduct competition which is obtained.

**Interrelations in Sales of Chicken Meat Products.** The changes which occurred in sales of different chicken meat products when sales of the major type of fryers were fluctuating in a certain fashion are illustrated in figure 33. Insufficient data were available to illustrate the changes in sales of ice-packed fryers when dry-packed fryers fluctuated.<sup>22</sup> The few observations made were in stores which changed back and forth from week to week, first offering dry-packed and

then ice-packed fryers. It seemed fairly conclusive that these two products are highly competitive—in fact, almost perfect substitutes for each other. They seemed to be about equally responsive in sales to the different merchandising practices used by retailers.

The next closest competitor of dressed, dry-packed fryers was cut-up fryers. The data indicate that in stores which carried both dressed and cut-up fryers increases in sales of the dressed were made partly at the expense of the cut-up. When dressed-fryer sales were 150 per cent of average and above, cut-up fryer sales were on the average about 70 to 80 per cent of average. Decreases in sales of the dressed were related, although to a lesser degree, to increases in sales of the cut-up. The relation appears to be of such significant size and consistency as to justify the above conclusion.

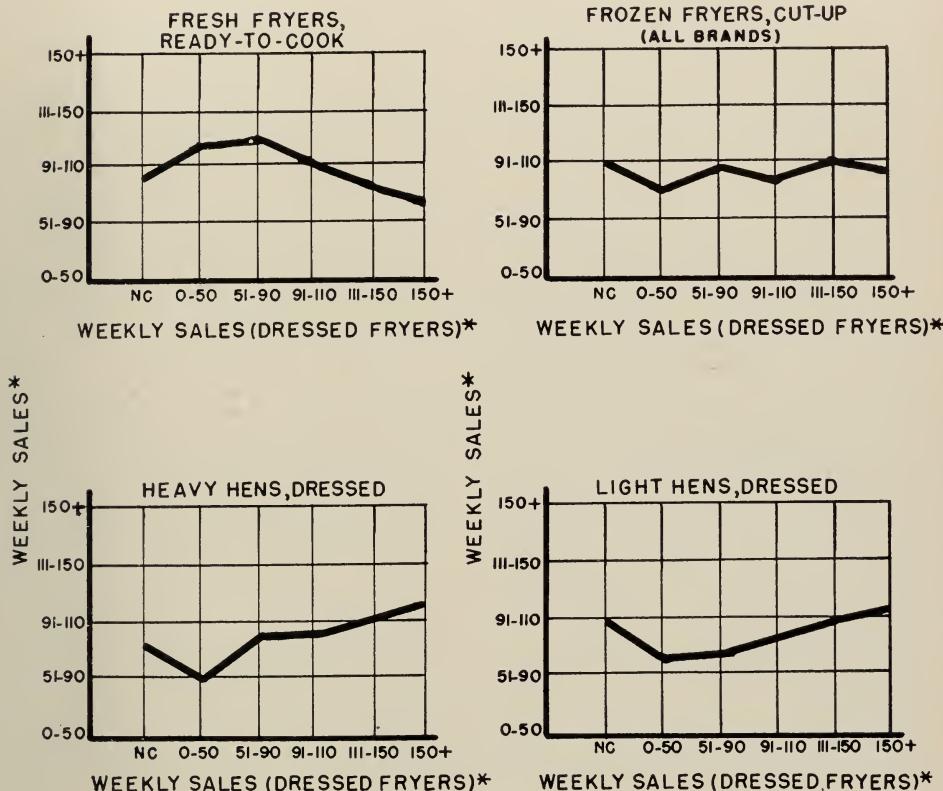
The next product, rated in terms of closeness of competitive position to dressed dry-packed fryers, were frozen fryers. The data indicate that fresh fryers and frozen fryers were not closely competitive. There appeared to be no significant relation between variations in sales of the two products. If there was any relation it was slightly competitive when fresh dressed fryers were not carried in the store and slightly complementary to other changes in volume. In other words, some customers shifted to frozen fryers on those days when they could not get fresh fryers. At other times, the factors which caused increases and decreases in fresh-fryer sales also caused slight changes in frozen-fryer sales in the same direction. Considerable changes in sales of one or the other occurred in the same store without favorably or adversely affecting sales of the other.

The above conclusion is contrary to a priori reasoning in this matter of interproduct competition. If the conclusion is correct and reliable, producers of fresh

<sup>22</sup> One of the tests conducted during the controlled experiment revealed that consumer acceptance of one fryer over the other depends primarily upon price.

**Figure 33. Relative Changes in Sales of Major Classes of Chicken Meat for Each of Six Weekly Categories of Dressed Dry-packed Fryers in Supermarkets and A-Size Retail Food Stores**

Los Angeles market, 1949-1950



\*AS A PERCENT OF THEIR OWN WEEKLY AVERAGE.

chicken in this and other areas need not worry greatly about the competition of fryers from other areas. With this knowledge retailers may be able to increase total sales of chicken meat if it is profitable for them to do so. The question of why fresh and frozen fryers are not more closely competitive when they are cooked similarly and occupy similar places in the menu will be discussed below (Competition between Fresh and Frozen Chicken).

The relation between changes in sales of dressed fryers and hens is also shown in figure 33. It reveals that from the viewpoint of the retailer both heavy hens and

light hens had a complementary relation with fryers. When sales of fryers were below normal sales of hens were below normal. The same held true when sales of each were above normal. Retailers can in general expect an increase in sales of hens when fryer sales increase. Some of the results shown here are probably caused by the fact that many retailers use price and advertising and other promotional devices to stimulate sales of fryers and hens at the same time. The heavier traffic in a store because of an ad on fryers may help pick up sales for hens. A competitive relation is shown for each when stores which normally carried fresh fry-

ers did not carry any. At this time some customers shifted from fryers to hens.

The above data do not reveal the same picture of interproduct competition which would be revealed by a mathematical analysis giving the cross-elasticity of demand for each product in terms of each of the others. Cross-elasticity of demand measures the sensitivity of consumers in shifting from one product to another because of a change in price alone.

The data in figure 33 show only the gross relations between changes in volume of sales. In other words, any and all causes of variations in weekly sales of chicken meat are allowed to enter this picture. It should be pointed out that the relations shown in figure 33 are averages of wide variations. For instance, when sales of fresh dressed fryers were at each level, sales of frozen fryers were at all levels from the highest to the lowest. The same was true for each of the other classes. While the average relation is the most significant one, the exceptions to it must be recognized.

**Price as a Factor in Interproduct Competition.** This section relates changes in volume of sales of dressed fryers to changes in prices of other classes of chicken meat. This reveals the influence of price changes on the gross relations shown in figure 33.

A competitive relation between dressed and cut-up fryers was shown previously. Price changes for cut-up fryers were reliably associated with changes in volume of dressed-fryer sales (fig. 34). For instance, when dressed-fryer sales were 150 per cent of average and above, prices of cut-up fryers were about 3 cents above average. This above-average price is partly responsible for the reduction in sales of cut-up fryers which accompanied the increase in sales in dressed ones.

There was little significant relation between changes in volume of fresh fryers and prices of frozen fryers. This is mainly because there was little relation between

price and quantity of frozen fryers or between changes in quantity of fresh dressed and quantity of frozen fryers. This means that volume of sales of fresh and frozen fryers are quite independent of each other even when sharp changes in price and volume occur for one.

There was no significant change in light-hen prices when fresh-fryer sales varied from far below normal to far above it. Apparently price was not responsible for the complementary relation between fresh fryers and egg hens shown earlier.

The influence of price changes in the competitive relation of fresh fryers and heavy hens is not clear except when sales of dressed fryers were high. The gross price-quantity relation for heavy hens was about the same as for light hens. Sales of heavy hens, in general, rose as sales of dressed fryers rose. From this one might expect that increases in sales of fresh fryers would be associated with decreases in the price of heavy hens. This appears to be confirmed at the higher level of fryer sales.

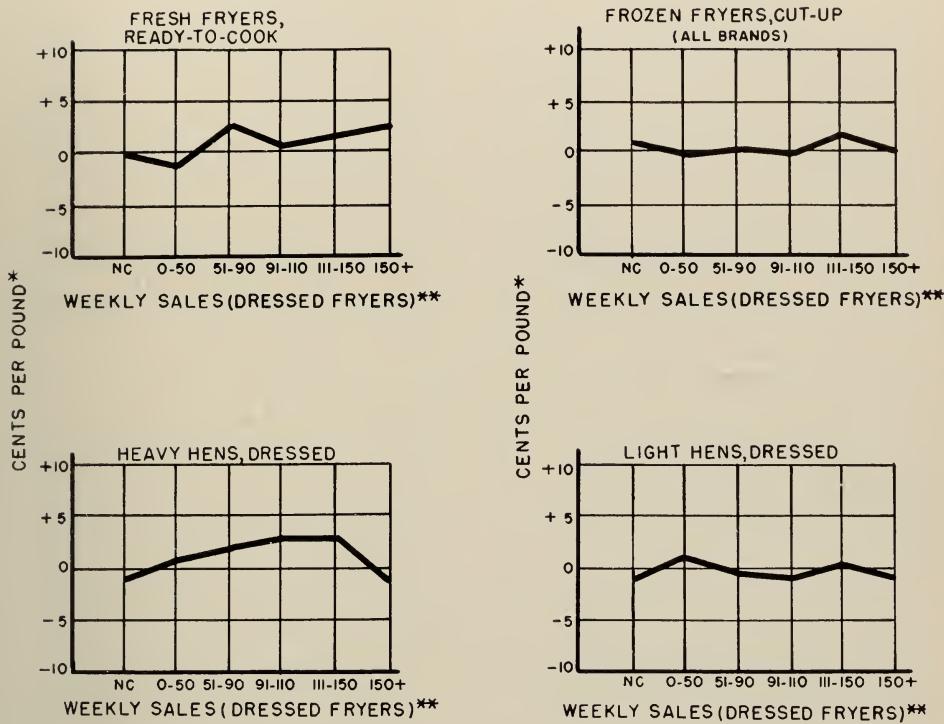
**Advertising as a Factor in Interproduct Competition.** The second most important factor associated with changes in sales of chicken meat was advertising. The influence of this factor on the competitive or complementary relation of different chicken meat products is examined here.

The relation between frequency of advertising for each of several chicken meat products and variations in sales of fresh-dressed dry-packed fryers is shown in figure 35. This series of charts must be studied in close connection with figures 22 and 23, which show the gross relation between advertising and sales for each class of product.

When dressed-fryer sales were below average, the percentage of cut-up fryer displays advertised was negatively associated with volume of sales of dressed fryers. This indicates that advertisements for cut-up fryers and the resultant increase in sales were partly responsible

**Figure 34. Relative Prices for Major Classes of Chicken Meat for Each of Six Weekly Categories of Dressed Dry-packed Fryers in Retail Food Stores**

Los Angeles market, 1949-1950



\*RELATIVE TO THE WEEKLY AVERAGE PRICES FOR EACH SIZE AND TYPE OF STORE.

\*\*AS A PERCENT OF THEIR OWN WEEKLY AVERAGE.

for some of the periods of low volume of sales of dressed fryers. When dressed-fryer sales were average or above, advertisements for cut-up fryers were used by so few stores that they were an insignificant influence.

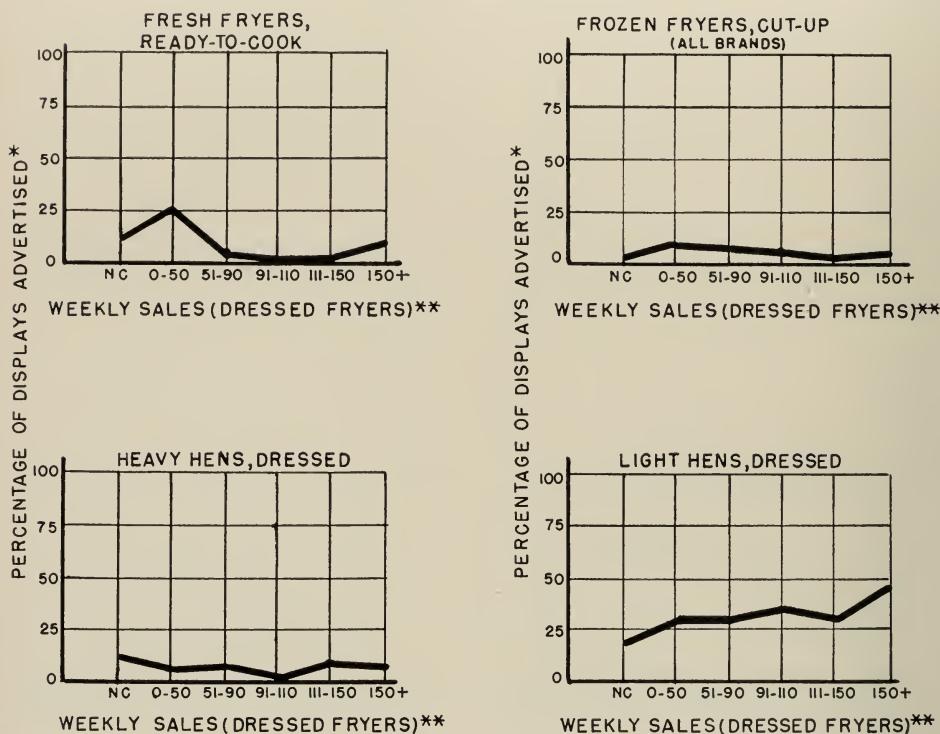
There appears to be no relation between percentage of stores advertising frozen fryers and volume of sales of dressed fryers. This was partly because advertising was used by so few stores for frozen fryers as compared with other classes that there was little chance for its influence to be felt. In conclusion, even though advertising of frozen fryers is somewhat associated with changes in volume of that product, it was not effective

as a force in determining the competitive relation of frozen fryers with fresh fryers.

Changes in frequency of advertising for heavy hens appeared to be unrelated to changes in volume of sales of dressed fryers. This is in contrast to the definite increases in advertisements for light hens as dressed-fryer sales increased. One may conclude that the practice of retailers in running advertisements for dressed fryers and for light hens simultaneously is responsible for the relation shown. The result is that the complementary relation between light hens and dressed fryers is partly caused by the price and advertising treatment they receive, whereas that between heavy hens and dressed fryers is

**Figure 35. Frequency of Advertising for Major Classes of Chicken Meat for Each of Six Weekly Sales Categories of Dressed Dry-packed Fryers in Retail Food Stores**

Los Angeles market, 1949-1950



\*EXRESSED AS A PERCENTAGE OF DISPLAYS WITHIN EACH SALES CATEGORY.

\*\*AS A PERCENT OF THEIR OWN WEEKLY AVERAGE.

caused by some factor not revealed in this analysis.

**Competition between Fresh and Frozen Chicken.** Most retail food stores in the Los Angeles area carry both fresh and frozen chicken meat. These represent, respectively, a product grown and processed in California and a product grown and processed elsewhere. Production of chicken meat in California is lower than the consumption—some has to be shipped into the state to furnish the quantity desired by consumers. The impetus for the importation process comes from out-of-state processors, who, looking for a market for their product, compare the prices obtainable in various parts of the country.

They are able to receive as much from some of their product shipped to Los Angeles as from that sold in their own state.

Local poultrymen are aware of the competition from the imported product. This importation prevents them from obtaining as much for their product as they would like to receive. Meeting this competition presents several problems. Quality is among the most important. Whereas locally produced chickens of all qualities appear on the market, only the more uniform and higher quality is shipped to this area by distant processors. Hence, local producers may feel they are at a disadvantage in having to dispose of some lower-quality birds. Nearly all the chicken

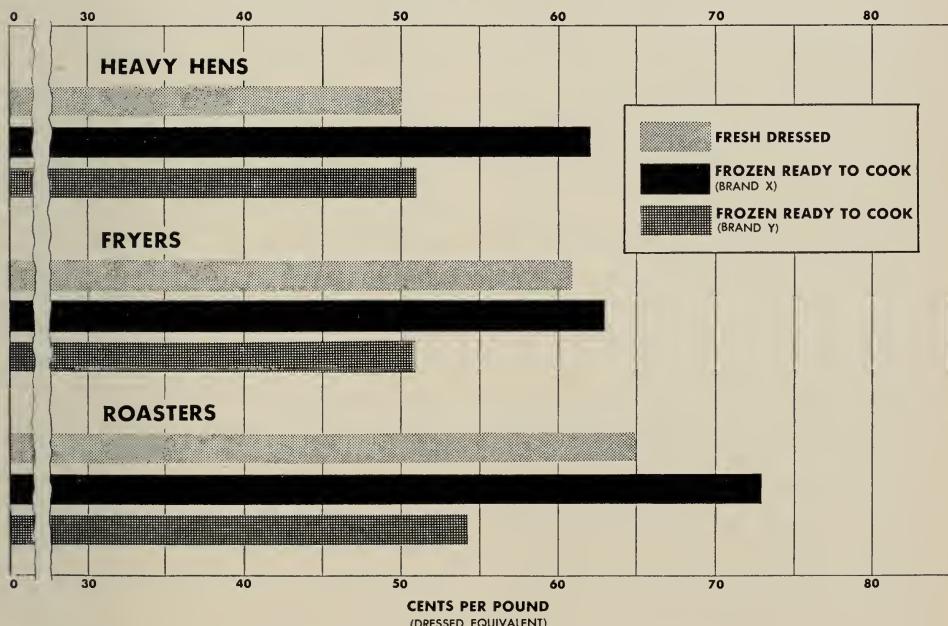
meat imported from out-of-state is sold in the cut-up, frozen condition because of the need for preserving the product over the time required to get it to the consumer. Hence, it is a cut-up product which frequently competes with a dressed product at a lower price. It represents a frozen product as compared with a fresh one with all that this implies for convenience and economy of time for the housewife. If fresh and frozen chicken are different products in the eyes of the shoppers, then they are not close substitutes for each other and local producers need not fear the competition of the frozen product. The characteristics of the products and the conditions under which they are offered and sold determine how close the competition between them is. Some of the factors affecting this competition are discussed below.

**Price.** Previous data have shown the extent to which changes in purchases of

fresh chicken have been accompanied by changes in those of frozen chicken and vice versa. One aspect of the competitive position of fresh and frozen chicken is the price of each found in the retail markets in the city. It has been shown previously that frozen chicken prices show less variation from week to week and less variation among stores than do fresh chicken prices. The average prices converted to an equivalent cost basis for the major classes of chicken, both fresh and frozen, are shown in figure 36. Since the bulk of frozen chickens sold are fryers, the comparison for that class is most significant. The chart shows that fresh and frozen fryers of comparable quality sell for nearly the same equivalent price—the frozen type usually being from 1 to 4 cents higher. However, one brand of frozen fryers consistently sold for 8 to 12 cents below other brands of comparable quality and hence below fresh fryers also.

**Figure 36. Average of Weekly Retail Prices for U. S. Grade A Chicken Meat, Fresh and Frozen,\* by Class and Brand**

Los Angeles market, December, 1949–July, 1950



\* Cut-up chicken prices, both fresh and frozen, converted to dressed equivalent prices.  
Source of data: Table 46 (Appendix).

If shoppers had the above information and were indifferent to all other characteristics of the products except price, we would find that price is the major factor accounting for the changes in consumption of each. Since average prices were so close, one may conclude that price is not an important factor in the choice between fresh and frozen chicken. One must look more closely at the nonprice factors in order to understand the competition between them.

The level of the price quotation for each may influence a customer in his choice between these two items. Fresh chicken is frequently sold dressed, whereas frozen chicken usually is sold ready to cook. There is a difference of about 25 per cent in total weight for the same amount of edible meat in these two forms. This fact is not often known to the consumer and if known cannot be easily and quickly used to calculate equivalent prices. Therefore, there is an element of ignorance in the price comparison in making the selection between fresh and frozen chicken. In addition to this there is an added appeal to retailers, and attributed by them to consumers, in offering a product which can be sold at a lower price quotation, *per se*. If the attraction of a lower price quotation is realistic, then this element should definitely be considered in the characteristics affecting the competition between them.

**Quality.** No generalization can be made about quality in relation to the competition between fresh and frozen chicken. The reasons are twofold: First, all grades of both fresh and frozen chicken are found; one is not universally of high quality and the other of low quality. Second, impartial evidence of the effect of freezing on the chemical, bacteriological, and flavor characteristics of chicken is not available to such an extent that consumers can use it. Furthermore, the effects of freezing alone would not be sufficient; improper storage can cause much deterioration.

It is probable that frozen chicken of each brand is more uniform in quality than the fresh chicken available. This is because the reputation of the processors in selling under their brand names depends upon their offering the same product, so far as possible, in each package. Consumers are taught to believe in and to buy brand-name products with confidence. The processor's reputation makes him pay attention to uniformity. Many retailers of fresh chicken attempt to acquire such a reputation but have difficulty in doing it. Others concentrate on price rather than quality. Previous data showed that lower prices on fresh-chicken "specials" frequently meant lower quality. The data collected in this study showed that quality of fresh chicken varied widely from week to week. Hence, uniformity of quality in these two products may have a significant influence on the desire of consumers to buy one or the other.

Aside from uniformity, consumers cannot obtain enough information about the quality of the two products for this to be a deciding factor in their choice. Other factors must influence them.

**Availability.** Frozen chicken was available in nearly all retail food stores in the Los Angeles market. It can be and usually is handled by any store having a frozen food cabinet. It was considerably more available to consumers than is fresh chicken; it may be obtained without the specific knowledge by a consumer of the products carried by a strange store. Furthermore, frozen chicken was usually available more hours of the day and more days of the week than was fresh chicken; it was the only chicken product the consumer could get on certain days or at certain times. This factor alone can account for a great competitive advantage for the frozen product in those areas where custom, store practices, or labor-union practices permit one department of the store or one kind or size of store to be open at different hours than others. Most of the store managers who were questioned on

the matter of day and time of frozen-chicken sales were unanimous in relating their experience that most frozen sales and in many stores 100 per cent of the frozen-chicken sales were on Sundays and nights when the fresh meat counter was not open for business.

**Convenience in Buying and Retailing.** Convenience to the food shopper and to the retailer handling the product are features which are influential in determining consumer choice. Frozen chicken offers a product to the shopper which is easier to buy, easier to select, and in a more desirable form for handling than the usual butcher-prepared product. The buyer can store the frozen product conveniently in the home refrigerator or can buy several chickens in advance with no worries about deterioration. Offering fresh chicken in the cut-up form in self-service meat departments does much to offset some of these advantages.

Frozen chicken offers many advantages to retailers also over handling the usual dressed product.<sup>23</sup> The main one is saving of butcher labor on cleaning and cutting chickens, which can be done much cheaper and more uniformly in the processing plant than in the retail store. This product is less trouble to buy than fresh chicken because there is no quality problem to argue about, and buying can be done less frequently. There is no spoilage problem and consequent loss of income, which many retailers are anxious to avoid. The frozen product is particularly adaptable to self-service merchandising, which appears to be gaining popularity with retailers throughout the country.

It should be kept in mind that some of the above remarks apply to a comparison of any packaged cut-up chicken with the dressed product. Therefore the trend toward merchandising fresh chicken in the cut-up form cancels some of the advantages of the frozen cut-up product. However, it was intended here to emphasize those characteristics which differentiate

frozen cut-up chicken from the prevalent dressed form in the Los Angeles market.

**Packaging.** The process of packaging any product gives it many characteristics which distinguish it in consumers' eyes from the bulk product. Some of these have already been mentioned because there is considerable overlapping in the appeal of certain characteristics, such as between convenience and packaging. In the Los Angeles market frozen chicken is typically a packaged product, whereas fresh chicken may be either bulk or packaged. Packaged fresh chicken, however, does not have all the characteristics of the packaged frozen product.

Among the most important features of packaging is that it makes branding possible. This is one of the most potent merchandising devices available to any seller. The effect on consumers of branding a product is a complex reaction which it is not possible to explain fully. Probably the main effect is that it simplifies buying for the consumer. It is difficult or impossible for a consumer to know all she would like to know or should know in order to make the most intelligent choice among the myriad of similar products available to her in most food stores. Packaging and branding make it possible for a consumer to substitute one word or name as a guide in buying for numerous specific product characteristics and the value of each one in relation to the whole.

Packaging usually eliminates shrinkage and waste for the retailer so that the last item of a shipment sells for the same price as the first. This appears to be true of frozen chicken but not of fresh chicken.

Packaging of chicken may promote consumer confidence in the product by maintaining uniformity of nomenclature, by having the inspection or the U. S. grade printed on it, or by giving the consumer more information than he obtains about fresh bulk-style chicken. Most of the frozen chicken sold in this area enters interstate trade; therefore has been in-

<sup>23</sup> Chaplicki, Norbert L. Frozen poultry only. *Chain Store Age*. August, 1948. p. 52-53, 106-113.

spected for wholesomeness by the United States Department of Agriculture. Most consumers are affected favorably by the United States Department of Agriculture inspection stamp even though they do not know what it means. All ready-to-cook fresh chicken sold in the city of Los Angeles has a similar City Health Department seal attached to the bird, but fresh dressed chickens do not have it.

The terms used to describe chicken products in packages are much more uniform than those for products not in packages. This uniformity may contribute to consumers' buying habits in that it affects their opinion of the dependability of the product. Furthermore, a full description of the product giving its weight, age, usefulness, and instructions for cooking is found on all the packaged frozen chicken. This is not available for fresh chicken. All these features of packaging tend to give more convenience and confidence to the buyer and hence are of considerable importance in understanding consumers' preference for one type over another.

The above discussion has illustrated the many factors which consumers may

consider in making a choice between fresh and frozen chicken. It is likely that on many occasions, only one factor is dominant—that is, strong enough to cause the decision to be made on the strength of that factor alone. For instance, availability on Sunday may be the only factor considered. Selling fresh chicken in the cut-up form gives it many of the important characteristics of the frozen cut-up product. In this way the competition between the two products is becoming more acute. If this trend continues and consumers prefer fresh to frozen chicken, all other factors remaining equal, one might expect eventually to find the frozen cut-up chicken selling in retail stores for a price below that of the fresh product instead of slightly above.

#### Store Descriptions of Chicken

**Meat.** Among the merchandising practices which affect consumers' choice of chicken is the nomenclature used on displays. The wording on displays may cause consumers to choose chicken in preference to beef or fish, or vice versa. wording of descriptions, if not uniform among stores, or if inaccurate or misleading, may

**Table 17. Store Descriptions of Dressed Fryers, in Percentage of Total Displays, for Different Sizes of Store**

Los Angeles, 1949-1950

Descriptions	Super-markets	A-size independent	B-size independent	C-size independent	All stores
None.....	per cent 19	per cent 62	per cent 63	per cent 46	per cent 48
Frying chicken.....	35	23	2	33	24
Colored fryers.....	18	..	19	6	9
Fryers.....	3	1	4	..	3
Fresh dressed fryers.....	2	7	4	..	5
Fancy spring chickens.....	4	..	..	..	1
Fancy fryers.....	2	..	4	..	1
Caponette fryers.....	7	..	..	..	2
Miscellaneous.....	10	7	4	15	7
<b>Total.....</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>
<b>Number of displays.....</b>	<b>234</b>	<b>355</b>	<b>136</b>	<b>54</b>	<b>779</b>

**Table 18. Store Descriptions of Cut-up Fryers by Percentage of Total Displays, for Different Sizes of Store**

Los Angeles, 1949-1950

Description	Super-market chain	Super-market independent	A-size independent	B-size independent	C-size independent	All stores
None.....	per cent	per cent	per cent	per cent	per cent	per cent
None.....	76	16	54	96	100	65
Frying chickens.....	18	44	18	2	0	19
Colored fryers.....	6	..	..	..	..	2
Young colored frying chickens.....	..	8	0	0	0	2
Young colored fryers.....	..	5	0	0	0	1
Fresh dressed fryers.....	..	16	27	0	0	8
Fancy fryers.....	..	6	0	2	0	1
Milk-fed fryers.....	..	3	1	0	0	1
Miscellaneous.....	..	2	0	0	0	1
Total.....	100	100	100	100	100	100
Number of displays.....	125	91	74	52	50	280

affect consumer confidence in the product, which in turn may affect demand.

The different descriptions used by the retail-store sample for dressed fryers with the frequency of occurrence of each are shown in table 17.

Fresh frying chicken meat is one of the main products supplied by the poultry industry in southern California. It is surprising therefore that 63 per cent of the B-size retail food markets and 48 per cent of all retail stores did not describe the product when offered. The sales volume that is lost because of this fact may be large. Clear and proper description of products is an essential part of proper food retailing.

A second factor brought out by table 17 is the large variety of terms used. Not only is the customer confused, but may purchase some item in place of chicken. The terms "fancy" and "spring chickens" have no concrete meaning and serve only to distract the customer.

In view of the fact that about 35 per

cent<sup>24</sup> of the frying chicken produced in southern California is caponettes it is strange that only 2 per cent of the displays were described as such. Much of the benefit from raising highest-quality birds is lost in such neglect of advertising.

The same picture of descriptions used on displays of cut-up fryers is shown in table 18. Cut-up fryer packages usually had some form of wording on the package itself, although many did not. It is surprising to notice from table 18 that no C-size stores offering cut-up fryers placed any description on the counter. No store description was used for 96 per cent of the displays in B-size stores and 76 per cent of those in supermarket chain stores. Supermarket independent stores had a low figure for "no description." "Frying chicken" and "fresh dressed fryers" were the most frequent as descriptive terms. The terms "milk fed," "fancy," and "young colored" were little used.

A great improvement in retailing could be made by encouraging more specific,

<sup>24</sup> Estimated by the authors from numerous contacts with the industry.

**Table 19. Store Descriptions of Dressed Light Hens, by Percentages of Total Displays, for Different Sizes of Store**  
 Los Angeles, 1949-1950

Description	Super-market chain	Super-market independent	A-size independent	B-size independent	C-size independent	All stores
	per cent	per cent	per cent	per cent	per cent	per cent
None.....	4	23	36	40	45	26
Stewing chickens.....	35	36	28	43	33	34
Stewing hens.....	18	33	25	10	16	24
Young hens.....	15	..	5	..	..	6
Fancy chickens.....	13	..	..	..	..	4
Fresh dressed chicken.....	..	7	..	..	..	2
Colored hens.....	..	..	6	..	..	2
Miscellaneous.....	15	1	..	7	6	2
Total.....	100	100	100	100	100	100
Number of displays.....	93	81	105	30	29	336

**Table 20. Store Descriptions of Dressed Heavy Hens by Percentage of Total Displays for Different Types of Stores**  
 Los Angeles, 1949-1950

Description	Super-market chain	Super-market independent	A-size independent	B-size independent	C-size independent	All stores
	per cent	per cent	per cent	per cent	per cent	per cent
None.....	3	29	72	73	59	47
Colored hens.....	15	29	4	..	..	11
Stewing chickens.....	39	24	20	..	14	22
Stewing hens.....	7	11	4	..	9	5
Heavy hens.....	14	..	..	..	..	3
Young hens.....	4	..	..	..	..	1
Colored fowl.....	4	..	..	..	..	1
Large roasting chickens.....	4	..	..	..	..	1
Roasting chickens.....	3	..	..	..	..	1
Fatted fowl.....	0	6	..	..	..	1
Milk-fed chickens.....	..	1	..	..	..	..
Fancy chickens.....	..	..	..	18	18	4
Colored roasting chickens.....	..	..	..	8	..	2
Miscellaneous.....	7	..	..	1	..	1
Total.....	100	100	100	100	100	100
Number of displays.....	157	140	205	119	44	653

informative, and uniform terms for describing fryer displays.

Descriptions used by retailers in selling light hens are shown in table 19. One significant aspect of table 19 is the high proportion of displays of light hens that had no descriptive information. Supermarket chain stores had the lowest proportion of displays with no description. From 23 to 45 per cent of the displays in other stores had no description.

Another factor revealed is that 16 per cent of the display descriptions were misleading or inaccurate. Most hens are sold only after they have outlived their laying function. These hens cannot accurately be called "young hens." "Fancy chicken" and "fresh dressed chicken" are difficult for customers to understand because the term "chicken" includes many classes. The term "colored hens" in describing light hens is actually inaccurate and misleading to consumers.

Two per cent of the display descriptions read "special" when the item was not advertised in any way.

Descriptions used by retailers in selling heavy hens are shown in table 20. For the total number of displays of heavy hens, lack of descriptive information is again significant. Even though supermarket chain store displays were nearly all described, 72 per cent of the displays in A-size stores and 73 per cent of those in B-size stores were not described. The potential value for increasing sales and educating the consumer that is lost here is serious.

Confusing, inaccurate, and misleading terms such as "milk-fed chickens," "roasting chicken," "young hens," "fancy chickens" were used in 10 per cent of the displays.

B- and C-size stores tended to use terms that would confuse the customer such as "fancy" and "roasting" more often than the larger stores.

The large number of different descriptions used and the lack of descriptive labels to help customers make better choices afford an area to improve the merchandising of chicken.

## EXPERIMENTS IN GRADE LABELING AND CONSUMERS' PREFERENCES

Previous sections of this report have indicated that a uniform grading system might improve the efficiency of marketing chicken meat in the Los Angeles market. The suggestion was made that consumers are not being informed of the characteristics of chicken meat so that they can make the most satisfying choice between qualities. Consumers have difficulty in comparing the product in one store with that offered in competing stores.

Although a uniform grading system seemed to be an answer to the problem, a number of questions about its feasibility continually reappeared. Among them were: Will consumers accept lower-grade fryers when displayed adjacent to the higher-grade product? What effect on retail sales can be expected from introducing a uniform grading system using

United States Department of Agriculture standards? What objections will retailers and processors have with U. S. grades and the offering of graded fryers? Are shoppers able to differentiate between U. S. grade A and U. S. grade B fryers?

The experiments reported in this section are attempts to obtain tentative answers to questions of this sort. The industry (producers, processors, and retailers) agreed that answers to these and other questions would be desirable, but that they may vary in different areas and in different times. It was also aware that definitive answers to most of them cannot be obtained except after experience with a grading system for a number of years. However, the short-run as well as the long-run effects are important. This experiment concentrated on the short-run

effects, particularly in measuring the sales response to the grading system.

**Experiment on Grade Labeling.** A controlled experiment was designed to meet two objectives. They were:

1. To test the effects of introducing U. S. grades of chickens where they had not previously been offered, and
2. To gain some experience in the use of a uniform grading system at retail.

One of the effects claimed for the grading of agricultural products is an increase in consumption. This comes about theoretically through improved consumer satisfaction from a better adjustment of different products to different incomes and tastes, improved consumer satisfaction from receiving a more uniform product, and from being able to check prices of the product at various outlets available to shoppers. Therefore, one of the measures of the test was the effect on total sales of fryers (and on other chicken products and all meat sales) from introducing the grading system. At the same time the procedure gave the opportunity to test grade-price differentials for chicken at retail and to test the effect of different terms used to describe the product.

The above comments indicate that "testing" the introduction of a grading system necessitated obtaining results in quantitative terms. This was one of the major purposes of the experiment. But there was another purpose, perhaps equally important for the poultry industry. This was to gain some experience in the use of a grading system at retail. The results of this endeavor were not measurable in quantitative terms. The standards for the nonquantitative results were the degree of retailer acceptance of the system, the degree of processor-retailer coöperation encountered in the use of a grading system, the kind and amount of troubles with and objections to the system which this experience revealed, and the reactions of processors

who had not had previous experience in selling on United States Department of Agriculture standards.

**Methodology.** The most important problem encountered in this controlled experiment was that of identifying and isolating the variable to be measured and then setting up a procedure which would adequately measure changes in the variable. The variable was identified first as "the effects of a grading system." The question arose, what is a grading system? It is the procedure for identifying the technical characteristics of a commodity, establishing a set of standards based on these characteristics, and then segregating and labeling the commodity in accordance with those standards.

The problem of labeling was considered further. It is difficult to introduce two grades of chicken (if they are labeled by grade) into a retail store without attracting attention of shoppers. Buyers are attracted first to chickens, as compared with other meats, and then to one grade as compared with another. They will undoubtedly ask questions concerning the presence of two displays, and of different prices of the two products. In order to satisfy them the butchers in the store need to have reasonable and satisfying replies ready. An information sheet or sign near the display would serve the same purpose. It is inevitable that differences in statements or wording will result in more "push" being given one grade as compared to another. Hence, purchases reflect shoppers' subjective reaction to an "innovation" and the wording used as well as the quality differentiation done by grading.

Segregation of a product by quality cannot be distinguished from labeling. The segregation process is in itself a method of labeling. It labels the product as this quality or that quality in the eyes of the grader, the processor, or the retailer. If the retailer offers different qualities at different prices, the products are labeled for the consumer regardless of

whether or not they have grade labels on them. Butcher's remarks to the customer become labels. Any one of a group of variables including the customer's evaluation of the freshness, cleanliness, and general appeal of the chicken is a label.

The question is not, therefore, one of labeling or not labeling, but rather one of choosing between labels and trying to isolate, to a measurable extent, the effects of different kinds of labels.

The presence of a label on the segregated product cannot be separated from the wording of the label. The wording greatly affects consumers' preferences. The application of the United States Department of Agriculture stamp to a product which did not previously carry it may increase consumers' confidence in the product. Any word used to describe quality will mean different things to different people. Many people in the poultry industry object to the use of the terms "grade A" and "grade B." They feel the latter is psychologically "loaded" to mean inferiority of some kind. Other pairs of words such as "fancy" and "standard" or "choice" and "good" may be more desirable.

The above paragraphs illustrate some of the problems in isolating the variable to be measured. In order to test adequately the results of the introduction of a United States Department of Agriculture grading system it was necessary to assume that customers would choose between grades and hence find a more precise adjustment of their incomes to products offered. The authors felt that consumers in general did not have full knowledge of the quality characteristics of chicken meat in relation to U. S. grades. As a result, two experiments were designed to test:

1. The acceptance pattern of customers for a combination of two major factors—their interpretation of quality differences *plus* the importance given to them by U. S. grade labels as indicators of quality.
2. The ability of customers to select

between grades when no differentiating identification was present other than the physical properties of the meat.

The procedure for carrying out the first experiment was as follows: In each of two retail food store chains two test stores fairly comparable as to size, merchandising practices, and consumers in area, were selected. The stores in each chain interchanged roles as test and control stores each month during a period of 4 months. During each month the procedure in the test store was as follows:

*Week 1.* U. S. grade A fryers were put on display and information sheets regarding the meaning of U. S. grade A were given to each prospective customer.

*Week 2.* U. S. grade B fryers were introduced in addition to U. S. grade A and the two prices were based on a normal proportionate markup. Information sheets regarding the meaning of the U. S. grades A and B were available to the customers.

*Week 3.* Quality specifications and price differential remained the same except "fancy" and "good" or "fancy" and "choice" were substituted for "U. S. grades A and B." Information sheets on meaning of "fancy" and "good" were available to customers.

*Week 4.* Same procedure as week 3 was followed except the price differential was changed.

Only U. S. grade A was carried during week 1 because many stores in practice carried only the top grade, and the effect on sales as influenced by a grading system on consumer confidence was deemed essential. Quality designations were changed during week 3 to see if the different terminology affected sales.

The control store simply kept a record of sales during the test period and carried on its practices as usual.

**Effect on Sales.** A picture of the size and the fluctuations in the fryer business in the retail stores coöperating in the experiment is given in table 21. Changes in the percentage of grade A and grade B

**Table 21. Dollar Sales of U. S. Graded Dressed Fryers by Grade and Price in Test Stores during Controlled Retail Chicken Experiment**

February-June, 1951

Week	Store no. (test store)	Actual sales			Relative sales		Price per pound	
		Total	Grade A	Grade B	Grade A	Grade B	Grade A	Grade B
<b>Chain A</b>								
Feb. 12-18 . . . . .	2	dollars	dollars	dollars	per cent	per cent	cents	cents
Feb. 12-18 . . . . .	2	56	56	..	100	..	62	..
Feb. 19-25 . . . . .	2	61	37	24	61	39	62	59
Feb. 26-Mar. 4 . . . . .	2	110	50	60	45	55	62	59
Mar. 5-11 . . . . .	2	46	24	22	52	48	62	59
Mar. 19-25 . . . . .	1	157	157	..	100	..	69	..
Mar. 26-Apr. 1 . . . . .	1	140	109	31	78	22	59	57
Apr. 2-8 . . . . .	1	176	136	40	77	23	59	55
Apr. 9-15 . . . . .	1	177	90	87	51	49	59	55
Apr. 16-22 . . . . .	2	269	269	..	100	..	53	..
Apr. 23-29 . . . . .	2	186	81	105	44	56	59	55
Apr. 30-May 6 . . . . .	2	163	101	62	62	38	59	55
May 7-13 . . . . .	2	83	50	33	60	40	59	55
May 28-June 3 . . . . .	1	212	184	28	87	13	59	55
June 4-10 . . . . .	1	135	95	40	70	30	59	55
June 11-17 . . . . .	1	181	35	146	19	81	59	49
June 18-24 . . . . .	1	174	122	52	70	30	59	49
<b>Chain B</b>								
Feb. 12-18 . . . . .	1	dollars	dollars	dollars	per cent	per cent	cents	cents
Feb. 12-18 . . . . .	1	226	226	..	100	..	49	..
Feb. 19-25 . . . . .	1	77	35	42	45	55	59	55
Feb. 26-Mar. 4 . . . . .	1	71	41	30	58	42	59	55
Mar. 5-11 . . . . .	1	33	21	12	64	36	57	57
Mar. 19-25 . . . . .	2	36	36	..	100	..	59	..
Mar. 26-Apr. 1 . . . . .	2	41	18	23	44	56	59	55
Apr. 2-8 . . . . .	2	47	28	19	60	40	59	55
Apr. 9-15 . . . . .	2	40	20	20	50	50	57	57
Apr. 16-22 . . . . .	1	43	43	..	100	..	59	..
Apr. 23-29 . . . . .	1	32	19	13	59	41	59	57
Apr. 30-May 6 . . . . .	1	37	23	14	62	38	59	57
May 7-13 . . . . .	1	41	19	22	46	54	59	59
May 28-June 3 . . . . .	2	46	24	22	52	48	63	59
June 4-10 . . . . .	2	10	2	8	20	80	59	59
June 11-17 . . . . .	2	60	33	27	55	45	63	59
June 18-24 . . . . .	2	19	8	11	42	58	63	59

fryers sold and the prices charged are also shown for the periods when each store was serving as a "test" store.

In each of the first three monthly test periods in each of the two retail chains, sales of grade A fryers were greater when this grade only was offered than for grade A in any week when both grade A and B fryers were offered (table 21). This is primarily because all the fryer sales in that week were concentrated in one grade, whereas in all later periods the sales were divided between two grades. There is also the element of initial response of customers to the change from the usual product to a higher-quality, grade-labeled product.

Among the conclusions drawn from these data is the definite indication that shoppers patronizing these stores did accept grade B fryers when displayed adjacent to grade A fryers. This occurred regardless of the wording of the display. The proportion of grade A to grade B fryers sold differed because of the price differential or for other reasons, but the fact remains that customers did not boycott the product. A fear that this might happen had been expressed by the trade.

For the third week in each test period the nomenclature of the two grades in chain A was changed from "U. S. grades A and B" to "fancy and choice." There was no marked change in total sales from the change in descriptive terms used. The proportion of grade A to grade B which was sold when the change in nomenclature occurred was not consistent. No conclusion can be drawn from these data about customers' psychological reaction to the different terms. In chain B the nomenclature of the grades was changed in the third week of the test period from "U. S. grades A and B" to "fancy" and "good." Again no consistent change in total sales occurred. However, for every week in which this change occurred, in both stores in chain B the proportion of grade B fryers dropped. This indicates the possibility that customers in these

stores were influenced in their choice of quality by these terms. If they were so influenced it appears that they felt a "fancy" grade product is more desirable in relation to a "good" grade product than is a grade A product to a grade B.

Under the conditions described here the term "grade B" did not appear to be a serious deterrent to sales. The idea that the term "grade B" should not be used because of the inference of inferiority attached to it is firmly entrenched in the poultry industry. These data indicate that this idea needs further examination before it is taken as a basis for action.

The absolute volume of sales of fryers during the successive weeks of the test periods did not move steadily upward or downward. Sales the first week of each test period were not consistently higher or lower than other weeks. Factors other than the grading system and the innovation must account for the variations.

The comparisons between sales of dressed fryers in each store when it served as a test store versus sales in the control store at the same time are shown in table 22. The greatest response in sales to the grading system occurred in the first week in which it was introduced. In seven out of the eight test periods sales in the test store were from two to three times the volume in the control store. The one week of relatively low sales (57 per cent) was the result of a large increase in sales in the control store because of an advertisement and a low price on fryers in that store. The high relative sales figure of 196 per cent for the average of first-week periods is caused by several factors: the higher-quality product than had been previously available, the innovation response of consumers who were curious about the "new" product, and the uniformity in quality of the fryers available. The lower relative average sales in the second week of the test periods was owing partly to the loss of the innovation effect and partly to the addition of the grade B fryers to the display. This had the effect

**Table 22. Dressed Fryer Sales in Test Stores as a Percentage of Sales in Control Stores During each Weekly Phase of Experiment**

Los Angeles market, February-June, 1951

Chain	Store no.	Test period	Test periods (each 4 weeks long)			
			First week	Second week	Third week	Fourth week
			per cent	per cent	per cent	per cent
B.....	1	1	233	56	99	45
	1	2	195	70	80	85
	2	1	157	171	196	211
	2	2	219	94	133	54
A.....	1	1	57	27	119	53
	1	2	292	165	91	154
	2	1	271	153	169	177
	2	2	148	129	137	143
Average...	..	..	196	108	128	115

of lowering the average quality of all fryers available. Some customers may have seen only the grade B display and been influenced against the product. The lowest relative sales figure in the second week (27 per cent) was caused by high sales in the control store because of an exceptionally low price (49 cents a pound) although no advertisement was used. In the third and fourth weeks sales in the test stores averaged significantly higher than in the control stores.

The over-all stimulating effect of the grading system on sales lasted strongly over the entire 4 weeks of each test period. There appears to be no difference in this respect in the second test periods for each store as compared with the first. If this increase in sales noted resulted exclusively from the innovation effect one might expect a drop in relative sales in the second week of each test period.

The relative changes in sales of fryers, other poultry products, and all meats for the entire 16-week period of the experiment are shown in tables 23 and 24. These

tables give a broader picture of the effects of introducing a grading system for fryers alone. Sales in the test periods are here expressed as the percentage increase which occurred in the test period over the base period. This figure expresses the effect of the grading system on sales.

Sales of dressed fryers in the test periods in the two stores in chain A increased on the average 63 and 13 per cent over the base-period sales, those in chain-B stores 46 and 6 per cent, respectively. For the short period of the test, and in the limited number of stores tested, the stimulating effect of the grading system on sales of dressed fryers alone seems well established.

Was the increase in dressed-fryer sales made partly at the expense of other poultry products or other meat? Let us consult the data in tables 23 and 24.

It appears that the increases in sales for all poultry products combined are greater than the decreases. Sales of ready-to-cook fryers varied widely as sales of dressed fryers increased. In store 1, chain

A, ready-to-cook fryers decreased sharply in sales. However, the differences in reaction among the stores were so wide that no definite conclusion can be drawn about the effects on sales of ready-to-cook fryers. Sales of hens usually decreased during the test periods as compared with base-period sales. This would indicate that fryers were substituted for hens by some shoppers when fryers were graded. Turkey and rabbit sales were irregular.

Even though total meat sales during the test periods changed relatively little, the fact that they increased in each store is significant. It indicates that some fairly uniform influence was at work in all the stores. The primary change introduced during these periods was the uniform grading system for fryers. Since fryers are such a small proportion of total meat sales, changes in them must be great to affect total meat sales noticeably.

**Table 23. Weekly Average Sales of Various Poultry Products and Meat during Controlled Experiments, Chain A Selected Stores**

Los Angeles, January-June, 1951

Product	Weekly average sales				Difference§	Increase or decrease
	Control periods*	Base periods†	Test periods‡	Adjusted test periods§		
Store 1, chain A						
Dressed fryers.....	153	134	222	218	+ 84	+ 63
Ready-to-cook fryers.....	199	209	114	104	-105	- 50
Total fryers.....	365	350	325	312	- 38	- 11
Total hens.....	461	434	419	419	- 15	- 3
Turkey and rabbit.....	161	275	230	274	- 1	0
Total poultry.....	996	1,079	975	997	- 82	- 8
Total meat.....	8,600	8,131	8,900	8,413	+282	+ 3
Store 2, chain A						
Dressed fryers.....	134	131	172	148	+ 17	+ 13
Ready-to-cook fryers.....	207	197	196	206	+ 9	+ 5
Total fryers.....	341	328	360	347	+ 19	+ 6
Total hens.....	192	193	178	166	- 27	- 14
Turkey and rabbit.....	132	157	140	204	+ 47	+ 30
Total poultry.....	660	675	679	733	+ 58	+ 9
Total meat.....	6,664	6,289	7,310	6,933	+644	+ 10

\* Control sales are average weekly sales in each store during the weeks when its "partner" store in the chain was a test store; i.e., carried graded dressed fryers.

† Base sales are average weekly sales in each store when store operations were "normal"; i.e., no tests were being conducted and store practices were the same as they had been for several months prior to the experiment.

‡ Test sales are average weekly sales in each store during the weeks when it carried graded dressed fryers on an experimental basis.

§ Adjusted test sales are test sales figures adjusted in inverse proportion to changes in sales from the base to the control period which occurred concurrently in the control store. In other words, if sales in a store during a control period rose 10 per cent above the base period sales, it was assumed that sales in the test store would have risen by the same proportion if the test of graded dressed fryers had not been in effect. Therefore, sales in the test period were adjusted downward by 10 per cent in order to give proper weight to the effect of the grading system.

|| Difference is between base sales and adjusted test sales.

|| The per cent increase or decrease is the per cent the difference is of base sales.

**Table 24. Weekly Average Sales of Various Poultry Products and Meat during Controlled Experiments, Chain B Selected Stores**

Los Angeles, January-June, 1951

Product	Weekly average sales				Difference§	Increase or decrease
	Control periods*	Base periods†	Test periods‡	Adjusted test periods¶		
Store 1, chain B						
Dressed fryers.....	52	52	77	76	+ 24	+ 46
Ready-to-cook fryers.....	64	64	39	48	- 16	- 25
Total fryers.....	107	102	122	126	+ 4	+ 4
Total hens.....	33	35	29	26	- 9	- 26
Turkey and rabbit.....	87	114	80	56	- 58	- 51
Total poultry.....	211	242	230	216	- 26	- 11
Total meat.....	3,108	2,928	3,898	3,488	+ 560	+ 19
Store 2, chain B						
Dressed fryers.....	63	62	66	66	+ 4	+ 6
Ready-to-cook fryers.....	24	28	29	29	+ 1	+ 4
Total fryers.....	89	93	81	76	- 17	- 18
Total hens.....	82	76	78	83	+ 7	+ 9
Turkey and rabbit.....	70	58	95	109	+ 51	+ 88
Total poultry.....	241	228	250	280	+ 53	+ 23
Total meat.....	4,279	3,762	3,587	3,813	+ 51	+ 1

\* Control sales are average weekly sales in each store during the weeks when its "partner" store in the chain was a test store; i.e., carried graded dressed fryers.

† Base sales are average weekly sales in each store when store operations were "normal"; i.e., no tests were being conducted and store practices were the same as they had been for several months prior to the experiment.

‡ Test sales are average weekly sales in each store during the weeks when it carried graded dressed fryers on an experimental basis.

¶ Adjusted test sales are test sales figures adjusted in inverse proportion to changes in sales from the base to the control period which occurred concurrently in the control store. In other words, if sales in a store during a control period rose 10 per cent above the base period sales, it was assumed that sales in the test store would have risen by the same proportion if the test of graded dressed fryers had not been in effect. Therefore, sales in the test period were adjusted downward by 10 per cent in order to give proper weight to the effect of the grading system.

§ Difference is between base sales and adjusted test sales.

|| The per cent increase or decrease is the per cent the difference is of base sales.

The average increase in sales brought about by the introduction of the grading system was 32 per cent. This is large enough to indicate that if a uniform grading system for dressed fryers were introduced, stores which adopted it could probably expect an increase in their sales relative to those of other stores. However, it is not clear from this experiment whether the increase in fryer sales represents a net increase in sales for poultry products or for all meat products.

#### **Effect of Grade-Price Differentials on Sales.**

Although consumers in the Los Angeles market have had different grades of chicken meat available to them, they have not usually had these grades segregated and placed side by side in the same store. Among the types of data necessary to determine the feasibility of a grading system are the different quantities which consumers will take of each of the different grades at certain price differentials between them. In addition,

such data would give a clue as to the size of the grade-price differential which might exist at wholesale and at the farm if a grading system were used. This section is a report on the results of changing the prices at which grade A and grade B fryers were offered in the test stores.

The proportionate sales of each grade at different grade-price differentials are shown in table 25. The small number of observations for the zero, 2-cent, and 3-cent differentials prevents drawing useful conclusions. The 4-cent differential was most popular among the retailers and represented approximately the difference in price charged by processors. In addition, it represented the retailers' judgment of the price differential necessary to move the two grades out into sale.

During the periods the 4-cent differential was in effect the proportion of grade A fryers sold varied from 42 to 87 per cent. This variation may indicate that

different customers were being exposed to the choice each time and their reactions were not uniform. It may also indicate that customers are not aware of the differences in quality between grade A and B fryers and were experimenting with each during the period of this test. It appears that for short periods of time the response to any low grade-price differential will be quite erratic.

**Consumers' Ability to Distinguish between Grades.** The second experiment was designed to ascertain how well consumers were able to distinguish quality in frying chickens. Two stores in a third chain were selected, each to serve alternately for four weeks as test and control store as in the previous experiment. Each test store was visited three times a week to insure close supervision.

A single display of fryers was maintained at the meat counter in the test store. Each bird displayed was graded by

**Table 25. Relative Sales of U. S. Grade A and B Dressed Fryers at Four Price Differentials. Selected Retail Chain Stores**

Los Angeles, selected weeks, February-June, 1951

Four-cent price differential		Three-cent price differential		Two-cent price differential		Same price	
A sales	B sales	A sales	B sales	A sales	B sales	A sales	B sales
per cent	per cent	per cent	per cent	per cent	per cent	per cent	per cent
87	13	73	27	59	41	64	36
70	30	45	55	62	38	46	54
44	56	48	52	77	23	..	..
58	42	..	..	77	23	..	..
51	49	..	..	..	..	..	..
44	56	..	..	..	..	..	..
62	38	..	..	..	..	..	..
60	40	..	..	..	..	..	..
44	56	..	..	..	..	..	..
60	40	..	..	..	..	..	..
50	50	..	..	..	..	..	..
52	48	..	..	..	..	..	..
55	45	..	..	..	..	..	..
42	58	..	..	..	..	..	..
Av. 56	44	55	45	69	31	55	45

a licensed federal grader from the Los Angeles office of the Production and Marketing Administration; the grade was marked for butcher identification only. Although some displays met the United States Department of Agriculture standards for A quality (10 per cent tolerance of grade B birds), most of the time the displays contained about 60 per cent grade A and 40 per cent grade B birds. A sign reading "U. S. graded fryers, fresh, wholesome, your guarantee of quality" was placed on the wall back of the meat counter. During the first two weeks of each test period a narrow sign inside the cabinet read "U. S. Graded fryers," during the second two weeks, "Fancy fryers."

Information sheets were placed on top of the counter over the fryer display. These sheets listed the quality characteristics from the United States Department of Agriculture standards in a way that would be understood by the average customer.

During each day of the experiment the display case was filled in the morning with the two grades in random arrangement. The display was intended to last all day, and the case was not refilled unless most of the chickens were sold. As the display was sold the sequence of sales was recorded to determine if one quality of fryer sold before the other. Presumably the grade A fryers would sell first if customers could distinguish quality. When a customer inquired about the purchase of a fryer she was asked, "Which

<sup>25</sup> A comparison of actual with expected sales of each grade in each quarter of the day for both stores is shown below:

	First quarter	Second quarter	Third quarter	Fourth quarter	Total
Grade A:					
Actual .....	223	182	194	179	778
Expected.....	191	186	195	179	
Grade B:					
Actual .....	70	120	119	106	415
Expected .....	102	116	118	106	
Total (actual) .....	293	302	313	285	1,193

A chi square test of these values indicates that differences this great or greater could have occurred as a result of chance fluctuations less than once out of one hundred tests of this sort. The expected values in each quarter were based upon the proportion of grade A to grade B birds in the display remaining after sales of the previous quarter had been deducted.

one would you prefer?" Thus the customer actually made the choice in each sale.

The sales for each day were divided into quarters. Then the sales for each quarter of the day were totaled by weeks and for the entire period of the experiment. The sales data are shown in tables 26 and 27.

In analyzing these data the pertinent aspect is whether the actual sales sequence of grade A and B fryers was significantly different from what the sequence would have been had customers had no discriminating ability whatever. The greatest difference between actual and expected sales of each grade occurred in the first quarter of each day. Statistical analysis of the data reveal that the differences shown are highly significant.<sup>25</sup> The proportion of grade A to grade B fryers sold in the second, third, and fourth quarters was not significantly different from that which would have been sold if customers had no discriminating ability for quality based on United States Department of Agriculture standards. This may have been caused by a concentration of discriminating shoppers in the early hours each store is open. However, at this time of day when the displays were fresh the differences between grade A and B fryers were greater. Customers with even a rough sense of quality in fryers would select the top grade A fryers (there is a considerable range of quality within the grade A category). Then as the day wore on the difference in quality between

**Table 26. Dressed Fryer Sales by Grade in Each Quarter of the Day,  
Store 1, Chain C**

Los Angeles, selected weeks, 1951

Week ending	Sales recorded		Sales in each quarter day									
			First quarter		Second quarter		Third quarter		Fourth quarter			
	A	B	A	B	A	B	A	B	A	B	A	B
Feb. 17.....	number	number	number	number	number	number	number	number	number	number	number	number
Feb. 17.....	61	21	16	4	17	4	12	9	16	4		
Feb. 24.....	64	27	16	6	12	11	18	6	18	4		
Mar. 3.....	66	39	21	6	15	9	20	9	10	15		
Mar. 10.....	58	34	19	3	16	7	14	10	9	14		
Apr. 21.....	43	11	11	1	11	2	14	0	7	7		
Apr. 28.....	45	6	10	1	12	2	11	3	12	0		
May 5.....	39	19	9	5	10	3	9	6	11	5		
May 12.....	64	27	22	1	13	12	17	7	12	8		
Total.....	440	184	124	27	106	50	115	50	95	57		

the grade A and the grade B fryers remaining on display decreased and was too small for customers to be aware of.

The conclusion is that some customers of these stores could and did select grade A fryers in preference to grade B in the first quarter of each day of the test.

#### Acceptance Pattern without U. S. Grade Labels.

One object of the controlled experiment in chain C was to see whether or not sales of dressed fryers increased when the product was brought to the attention of the customer as being U. S. graded but without grade labels at-

**Table 27. Dressed Fryer Sales by Grade in Each Quarter of the Day,  
Store 2, Chain C**

Los Angeles, selected weeks, 1951

Week ending	Sales recorded		Sales in each quarter day									
			First quarter		Second quarter		Third quarter		Fourth quarter			
	A	B	A	B	A	B	A	B	A	B	A	B
Mar. 15.....	number	number	number	number	number	number	number	number	number	number	number	number
Mar. 15.....	112	40	29	9	27	11	26	13	30	7		
Apr. 7.....	72	48	24	6	19	12	14	17	15	13		
May 26.....	42	46	10	12	11	12	11	12	10	10		
June 2.....	37	30	9	7	8	10	11	7	9	6		
June 9.....	52	33	18	4	8	13	12	10	14	6		
June 16.....	23	34	9	5	3	12	5	10	6	7		
Total.....	338	231	99	43	76	70	79	69	84	49		

tached. Table 28 shows sales during the test periods, when the displays were labeled as U. S. graded, and the sales during the control periods, when displays were not so labeled.

No sharp changes in sales of fryer or other meats occurred during the period of this experiment. Total poultry sales rose steadily, whereas total meat sales fell steadily. Sales of dressed fryers in store 1 were lower in both test periods in relation to the control store than they were in the control periods (table 28). Little information is available from these data concerning shifts in sales among the various classes of chicken during the period under study. The data from store 2 in this chain when analyzed as a per cent of sales in store 1 show approximately the same relations.

In these stores the information concerning the grading of the fryers when offered without the grade label attached seemed to have no effect on sales. This may indicate that the use of the grade labels in the previous phases of the experiment were of importance in explaining the increase in sales observed.

**Experience in the Use of U. S. Grades.** Gaining some experience in the use of a uniform grading system was considered an important part of the two experiments. The results of this experience

are measured in nonquantitative terms and were obtained from the comments of the retailers and processors who participated in the experiment and from the observations of the authors in their planning and execution of the project. The results of this experience were:

1. United States Department of Agriculture graded and labeled fryers were accepted by customers with no apparent objections.

2. Processors found that they could fill retailers' orders with as much and perhaps more accuracy and satisfaction when using U. S. grades than when using industry grades.

3. Retailers and processors found no serious objections to the use of U. S. grades and made many favorable comments about it. Some retailers felt that the use of these grades would increase the competition among retailers because it would give each one a better check on the product being offered by his competitors.

4. Certain retailers were opposed to the use of the term "grade B" on any product and would not carry grade B chickens if they were forced to use that term. Other retailers who usually carry only top quality available stated they would carry only grade A fryers if U. S. grades were introduced.

**Table 28. Sales Relations between Stores 1 and 2 in Chain C and among Poultry Products in Store 1**  
Los Angeles, February-June, 1951

Period (four weeks each)	Store 1 as per cent of store 2				Other poultry classes as per cent of dressed fryer sales		
	Dressed fryer sales	Total fryer sales	Total poultry sales	Total meat sales	Cut-up fryers	All hens	Turkey and rabbit
1 (test).....	per cent 88	per cent 111	per cent 109	per cent 103	per cent 66	per cent 93	per cent 40
2 (control).....	93	139	127	100	69	109	51
3 (test).....	83	120	130	98	102	117	85
4 (control).....	103	234	131	91	210	197	89



Above: Display of U. S. Grade A and Grade B dressed fryers in experiment on consumer reaction to a uniform grading system. Below: Poultry display in a Los Angeles supermarket.





Above: Display used to test consumer acceptance of dressed dry-packed versus dressed ice-packed fryers. Below: Descriptions and display used in testing consumer acceptance of dressed versus cut-up fryers.



5. Many retailers appreciated the opportunity this experiment gave them to learn more about quality in chickens and to compare industry with U. S. grades.

The following comments by the trade indicate some of the reactions some members had about the use of U. S. grades for fresh chicken:

"The greatest benefit of a uniform grading system would be to show producers they have to take a lower price for their grade B birds."

"U. S. grades are not specific enough. When buying in a highly price-competitive market I have to inspect each lot to insure getting the best quality at the lowest price."

"One can't depend on the quality bought under a U. S. grade because the graders are not consistent."

"The only factor in the USDA standards for quality in chickens of which customers are conscious is appearance or freshness."

"U. S. grades would be useful to customers, but a more reliable guide is the dependability of the brand on the chicken and the reputation of the store where purchased."

"Certain elements of the trade will not be receptive to introducing USDA grades because their operations are based on the theory that many customers are suckers and can be fooled."

"Introducing U. S. grades would have some advantages for some people but could not be enforced."

"I'm strongly in favor of U. S. grades since they would protect me from the fellow who tries to sell his low-quality stuff as high quality."

The conclusion from the nonquantitative portion of the experiment is that the advantages of using a uniform grading system based on U. S. grades at retail outweigh the disadvantages. The introduction and use of such a system is feasible within the framework of trade practices found in this area and would be accepted with few objections.

**Acceptance of Selected Forms of Fryers.** This section reports the results of three small controlled retail experiments. Their objective was to study consumer acceptance of:

1. Dressed dry-packed versus dressed ice-packed fryers
2. Dressed fryers versus dressed and drawn fryers
3. Dressed fryers versus cut-up fryers.

Each of the three tests was conducted for two periods of 2 weeks. The purpose of this series of experiments was to get a random check on current merchandising practices with the selected forms of fryers. These experiments were relevant to the other work in chains A, B, and C on consumer acceptance. The series was not intended to be a complete treatment of the variables involved. It was complementary to the main experiments. Its limitations must be kept in mind in studying the observations and conclusions to be drawn.

One experiment was concerned with consumer acceptance of dry-packed fryers as opposed to ice-packed fryers. In this area some packers use ice to pack and merchandise their frying chicken. There is considerable disagreement between the proponents of the ice-packing method and those who use the older method of chilling by air.

Those who favor the ice-packing method say:

1. The freshness quality of the chicken is maintained longer.
2. Drying out is prevented.
3. The keeping time is longer.
4. A more attractive display is possible.

The critics of ice-packing maintain on the other hand that:

1. The chicken picks up weight from water, which the customer buys.
2. Keeping the chicken wet is an insanitary procedure.
3. The ice and water hide quality defect.

With this dispute on the effects of ice-packing in mind, an experiment was de-

**Table 29. Number and Price of Dry-packed and Ice-packed Fryers Sold**

Three selected chain stores in Los Angeles, February 5-18, 1951

Period and form	Store 1		Store 2		Store 3	
	Price per lb.	Fryers sold	Price per lb.	Fryers sold	Price per lb.	Fryers sold
	cents	number	cents	number	cents	number
Feb. 5-11:						
Dry-packed....	57	19	59	37	53	120
Ice-packed....	54	50	59	17	49	104
Feb. 12-18:						
Dry-packed....	49	48	59	48	59	120
Ice-packed....	49	46	50	15	45	302

signed to test customer acceptance of dressed dry-packed fryers as compared with ice-packed fryers. In three stores (two in chains and one independent) displays of dry-packed fryers and ice-packed fryers were set up side by side. The quality was all equivalent to U. S. grade A. The results of the experiment are shown in table 29.

Store 1 had, prior to the experiment, normally sold both dry-packed fryers and ice-packed fryers. The dry-packed fryers were caponettes and of the highest quality. Care was taken to see that the ice-packed fryers were of equivalent quality as nearly as possible. The first week, with a 3-cent differential, sales of dry-packed fryers were 19 chickens as compared to 50 ice-packed chickens. The second week, with no price differential, approximately the same number of dry-packed and ice-packed fryers were sold—48 and 46, respectively. It is felt that the test in this store uncovered results that would be typical in a great many stores—sales the same at the same price and varying primarily according to price differential. This store normally placed emphasis on merchandising, and some of its customers were price-conscious.

Store 2 had a predominantly Jewish trade which demanded the traditional dry-packed fryer in dressed form. Ice-packed fryers had not normally been sold

prior to the experiment. At the same price and even (second week) at a 9-cent differential, sales of dry-packed fryers in this store were about three times as heavy as ice-packed fryers. The results seem fairly conclusive that in this type of store the ice-packed fryer is not accepted nearly so well as the dry-packed product.

In store 3, price and quality both were normally emphasized. Both dry-packed and ice-packed fryers had been carried previously. The dry-packed fryers sold about 20 per cent more, even when they were 4 cents higher than the ice-packed. However, when the dry-packed were 14 cents higher, sales dropped to only 40 per cent of that of the ice-packed fryers. The preference seemed to be for the dry-packed product at the same price, but the ice-packed product was accepted well when a large differential was established.

Some observations on consumer choice between dressed and ready-to-cook chicken meat were made. Parallel displays of dressed and cut-up chicken were first made and then parallel displays of dressed and drawn chicken were prepared. Different stores were used to carry the displays.

The reasons for feeling that a test of this sort would be significant were:

1. A trend in the direction of self-service of meats, which demands a high-quality product

2. The time saved both by the retailer and the customer

3. The higher level of efficiency resulting from mass operations by the processor

4. The greater appeal of a product "ready-to-cook" without fuss or bother

5. The feeling that consumers do not recognize the equivalence of the two prices posted for dressed and ready-to-cook chicken

The procedure and results of the test of dressed versus cut-up fryers were as follows: displays of dressed and cut-up fryers side by side were made in the usual place in the retail counter. The terms "New York dressed" or "ready-to-cook" were placed on the price tags in addition to the price. Across both displays was a narrow sign strip reading "Fresh frying chicken—same price when pan ready." On the counter was an upright poster reading "Fresh frying chicken New York dressed or ready-to-cook—offered both ways for your preference—same price when pan ready." These signs were placed near the display in the hope that the consumer's interest would be attracted and a definite choice between two forms of chicken made. The tests were conducted in stores 1 and 2 of the previous experiment. They were continued for 2 weeks. The results are shown in table 30.

Store 1, as mentioned earlier, normally stressed price merchandising and had a price-conscious customer group. It had carried both dressed and cut-up fryers previously. Acceptance of dressed and cut-up fryers was about the same during the first week. The prices were different but costs were the same on a dressed-weight basis. During the second week there was an advertisement on dressed fryers. During this week sales of dressed fryers were more than double sales of the cut-up product. It is significant to note, however, that the absolute sales of cut-up fryers did not decline for this week.

Store 2 normally did not sell cut-up fryers. Its customers had traditionally demanded a dressed bird. During both weeks at equivalent total cost, cut-up fryers sold at the rate of approximately 20 per cent of dressed sales.

The evidence from both stores thus seems to suggest that with proper merchandising and introduction to the different forms, acceptance of cut-up chicken meat may be demonstrated readily.

The procedure and results of the test of dressed versus drawn chickens were as follows: Displays of dressed fryers and drawn fryers were placed side by side. The price tags read "dressed and drawn" or "New York dressed." In the display

**Table 30. Number and Price of Dressed and Ready-to-Cook Fryers Sold**

Two selected chain stores in Los Angeles, March 10-25, 1951

Period and form	Store 1		Store 2	
	Price per lb.	Fryers sold	Price per lb.	Fryers sold
	cents	number	cents	number
Mar. 10-18:				
Dressed.....	54	26	62	63
Cut-up.....	73	22	83	12
Mar. 19-25:				
Dressed.....	54	64	62	76
Cut-up.....	73	28	83	18

**Table 31. Number and Price of Dressed and of Dressed and Drawn Fryers Sold**

Two selected chain stores in Los Angeles, February 24–March 11, 1951

Period and form	Store 1		Store 2	
	Price per lb.	Fryers sold	Price per lb.	Fryers sold
Mar. 10–18:				
Dressed.....	56	63	65	76
Dressed and drawn.....	73	9	89	0
Mar. 5–11:				
Dressed.....	56	27	65	70
Dressed and drawn.....	73	12	..*	..*

\* Not carried.

counter was another display sign reaching across both displays in front and reading "Fresh frying chicken—same price when pan ready." On top of the display counter was a larger multicolored merchandising poster which read "Fresh frying chicken—New York dressed and dressed and drawn fryers—offered both ways for your preference—same price when pan ready." The results of the experiment are shown in table 31.

Store 1 had had some success prior to the experiment in merchandising drawn fryers. The first week there was an advertisement on dressed fryers. Even so the number of dressed and drawn fryers sold was 14 per cent of dressed. The second week the number of fryers dressed and drawn was 44 per cent of the dressed. Apparently, in this store some people ac-

cepted the dressed and drawn product but most customers do not seem to realize that in terms of edible meat the drawn product at a higher price per pound costs the same as the lower-priced dressed fryer.

Store 2 had traditionally handled only dressed fryers for a predominantly Jewish trade. Even though a display of drawn fryers was carried the first week of the experiment none was sold. Evidently the customers in this store demanded dressed chicken fryers and wanted nothing else even at the same cost. The higher price for the drawn may have caused some consumers to shy away before relating it to an equivalent dressed price. The second week no drawn fryers were carried because of lack of demand. Sales of dressed were about the same as the week before.

## APPENDIX

**Table 32. Weekly Average Retail Prices and Their Standard Deviations for Chicken  
Meat by Classes and Forms, all Grades and Brands**

Los Angeles market, June-October, 1950

Product	Average retail price per pound and standard deviation, for week beginning:							
	June 26	July 10	July 24	Aug. 7	Aug. 21	Sept. 4	Sept. 18	Oct. 2
	cents	cents	cents	cents	cents	cents	cents	cents
<b>FRESH</b>								
Dressed:								
Fryers	59±10	58±9	58±8	60±8	61±7	61±8	60±8	59±9
Roasters	68±9	64±8	65±14	61±10	66±7	67±6	67±6	65±7
Heavy hens	48±8	48±8	48±8	51±7	50±8	51±7	52±7	53±7
Light hens	39±2	40±3	38±3	42±6	41±3	42±5	44±8	41±5
Ready-to-cook:								
Fryers	80±6	79±7	78±6	78±5	79±6	80±7	78±7	77±8
Roasters	89±*	71±*	79±*	85±*	85±*	85±*	81±*	82±*
Hens	63±3	58±8	63±6	62±6	60±7	62±6	62±6	62±3
<b>FROZEN</b>								
Ready-to-cook:								
Fryers	81±7	82±7	85±7	88±7	89±6	88±6	89±6	86±8
Roasters	84±9	83±12	86±8	84±8	90±*	85±5	87±7	89±*
Hens	75±11	79±8	76±7	77±6	78±6	78±8	79±6	80±9

\* Three items or less; no standard deviation calculated.

**Table 33. Weekly Average Retail Chicken-Meat Prices and Their Standard Deviations by Size and Type of Store for all Classes and Forms**

All grades and brands, Los Angeles market, every other week,  
January 8–March 20, 1950

Form of chicken and week beginning:	Average price per pound and standard deviation for:					
	Chain-store supermarkets	Inde- pendent supermarkets	A-size chain stores	A-size inde- pendents	B-size stores	C-size stores
	cents	cents	cents	cents	cents	cents
<b>Fresh fryers</b>						
Jan. 8.....	55±8	56±11	—	59±9	56±6	58±1
Jan. 23.....	53±7	55±7	—	58±11	56±5	60±3
Feb. 6.....	53±4	54±8	—	59±9	56±5	58±1
Feb. 20.....	57±6	56±5	—	59±10	56±4	58±1
Mar. 6.....	55±6	57±7	—	60±8	55±7	58±1
Mar. 20.....	53±6	54±7	—	61±8	59±7	64±7
<b>Dressed heavy hens</b>						
Jan. 8.....	51±8	50±11	—	52±7	51±5	52±*
Jan. 23.....	46±6	50±11	—	49±9	49±7	51±9
Feb. 6.....	45±4	48±10	—	49±8	49±6	53±*
Feb. 20.....	47±5	47±4	—	49±8	50±5	53±2
Mar. 6.....	48±6	51±9	—	50±8	49±6	50±5
Mar. 20.....	48±5	46±5	—	51±6	47±4	55±*
<b>Dressed light hens</b>						
Jan. 8.....	33±4	34±6	—	36±9	39±*	40±*
Jan. 23.....	33±6	33±4	—	39±4	39±*	40±*
Feb. 6.....	33±3	37±3	—	38±*	43±*	42±*
Feb. 20.....	38±3	39±5	—	38±1	44±*	40±*
Mar. 6.....	39±7	39±4	—	40±5	42±*	—
Mar. 20.....	42±3	41±6	—	44±4	42±*	45±*
<b>Frozen fryers</b>						
Jan. 8.....	77±4	82±9	65±*	82±7	83±4	82±6
Jan. 23.....	77±3	81±6	65±*	80±6	81±6	83±3
Feb. 6.....	74±5	80±6	—	80±5	81±5	83±6
Feb. 20.....	78±4	80±6	65±*	80±6	82±7	81±6
Mar. 6.....	78±3	82±5	69±*	82±6	81±5	83±5
Mar. 20.....	80±2	81±5	69±*	81±7	82±5	84±5
<b>Frozen hens</b>						
Jan. 8.....	72±6	79±10	65±*	72±4	59±*	80±*
Jan. 23.....	74±5	76±7	63±*	75±8	59±*	82±11
Feb. 6.....	72±5	73±9	69±*	75±8	—	84±9
Feb. 20.....	70±6	74±5	63±*	78±8	—	85±8
Mar. 6.....	72±3	80±8	67±*	79±8	75±*	85±8
Mar. 20.....	72±7	73±5	67±*	80±8	—	87±7

\* Indicates less than 3 occurrences of that item.

— Indicates none carried that week.

**Table 34. Weekly Average Retail Chicken-Meat Prices and Their Standard Deviations, by Classes and Forms in Independent Supermarkets**

All grades and brands, Los Angeles market, every other week,  
December, 1949–November, 1950

Week beginning	Average price per pound and standard deviation for:						
	Fresh dressed fryers	Fresh dressed roasters	Fresh dressed heavy hens	Fresh dressed light hens	Frozen fryers	Frozen roasters	Frozen hens
Dec. 12, 1949	cents 58±8	cents 67±6	cents 55±8	cents 39±4	cents 87±10	cents 100±*	cents 83±12
Dec. 26.....	56±10	69±*	52±9	39±4	83±6	88±20	81±11
Jan. 8, 1950	56±11	63±8	50±11	33±6	82±9	88±19	79±10
Jan. 23.....	55±7	65±*	50±11	33±4	81±6	81±3	76±7
Feb. 6.....	54±8	64±8	48±10	37±3	80±6	80±4	73±9
Feb. 20.....	56±5	69±*	47±4	39±5	80±6	79±*	74±5
Mar. 6.....	57±7	66±7	51±9	39±4	82±5	78±7	80±8
Mar. 20.....	54±7	57±6	46±5	41±6	81±5	79±*	73±5
Apr. 3.....	59±8	64±8	50±10	42±4	83±4	83±11	73±10
Apr. 17.....	61±7	67±6	52±9	38±6	84±5	84±1	74±9
May 1.....	61±6	69±*	49±10	37±2	85±6	88±6	75±12
May 15.....	65±6	69±*	50±9	39±5	85±7	89±6	77±13
May 29.....	64±8	75±*	51±10	39±6	85±6	89±6	76±13
June 12.....	60±9	75±*	51±12	38±6	85±7	97±*	73±12
June 26.....	60±7	75±*	51±10	39±2	83±8	97±*	77±11
July 10.....	58±9	69±*	49±10	38±1	83±8	91±*	82±9
July 24.....	59±9	69±*	51±9	39±*	86±6	87±*	74±7
Aug. 7.....	60±8	72±*	50±6	41±3	89±5	79±*	77±7
Aug. 21.....	62±7	72±*	51±8	38±2	89±5	—	78±6
Sept. 4.....	60±9	72±*	54±9	40±5	89±6	89±*	77±7
Sept. 18.....	61±9	75±*	52±10	39±2	88±7	93±*	79±6
Oct. 2.....	59±11	75±*	56±10	38±5	88±6	—	75±10
Oct. 16.....	60±8	66±8	53±10	39±7	85±8	88±4	77±10
Oct. 30.....	61±8	67±8	55±9	41±5	86±8	88±4	83±8

\* Indicates less than 3 occurrences of that item.

— Indicates none carried that week.

**Table 35. Weekly Average Fresh Chicken Prices Received and Paid and Gross Margin, by Classes, in Independent Supermarkets**

All grades, Los Angeles market, every other week, December, 1949-July, 1950

Week beginning:	Prices received and paid and gross margin, per pound dressed weight, fcr:															
	Fryers				Roasters				Heavy hens				Light hens			
	Received	Paid	Margin	Received	Paid	Margin	Received	Paid	Margin	Received	Paid	Margin	Received	Paid	Margin	
	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	
Dec. 12 .....	58	42	16	67	43	24	55	38	17	39	29	29	10	10		
Dec. 26 .....	56	41	15	69	43	26	52	38	14	39	28	28	11	11		
Jan. 9 .....	56	39	17	63	42	21	50	36	14	34	24	24	10	10		
Jan. 23 .....	55	39	16	65	40	25	50	35	15	33	23	23	10	10		
Feb. 6 .....	54	40	14	64	41	23	48	36	12	37	27	27	10	10		
Feb. 20 .....	56	42	14	69	43	26	47	36	11	39	28	28	11	11		
Mar. 6 .....	57	43	14	66	44	22	51	36	15	39	29	29	10	10		
Mar. 20 .....	54	46	8	57	47	10	46	38	8	41	30	30	11	11		
Apr. 3 .....	59	47	12	64	48	16	50	38	12	42	30	30	12	12		
Apr. 17 .....	61	47	14	67	47	20	52	37	15	38	28	28	10	10		
May 1 .....	61	48	13	69	50	19	49	37	17	37	28	28	9	9		
May 15 .....	65	53	12	69	53	16	50	36	14	39	29	29	10	10		
May 29 .....	64	50	14	75	51	24	50	36	14	40	28	28	12	12		
June 12 .....	59	45	14	76	47	28	52	34	18	38	28	28	10	10		
June 26 .....	60	43	17	75	45	30	51	34	17	39	28	28	11	11		
July 10 .....	58	42	16	69	43	26	49	34	15	38	28	28	10	10		
July 24 .....	59	42	17	69	43	26	51	34	17	39	28	28	11	11		

Source of data: Prices paid from daily market news service reports, U. S. Production and Marketing Administration, Los Angeles office.

**Table 36. Weekly Average Fresh Chicken Prices Received and Paid and Gross Margin, by Classes, in Chain Supermarkets**

All grades, Los Angeles market, every other week, December, 1949-July, 1950

Week beginning:	Prices received and paid and gross margin, per pound dressed weight, for:															
	Fryers				Roasters				Heavy hens				Light hens			
	Received	Paid	Margin	Received	Paid	Margin	Received	Paid	Margin	Received	Paid	Margin	Received	Paid	Margin	
	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	
Dec. 12.....	55	40	15	71	43	28	49	38	9	36	29	7				
Dec. 26.....	54	39	15	54	43	11	47	38	9	44	28	16				
Jan. 8.....	55	38	17	56	42	12	51	36	15	33	24	9				
Jan. 23.....	53	35	18	49	40	9	46	35	11	33	23	10				
Feb. 6.....	53	39	14	54	41	13	45	36	9	33	27	5				
Feb. 20.....	57	40	17	67	43	24	47	36	11	38	28	10				
Mar. 6.....	55	42	13	61	44	17	48	36	12	39	29	10				
Mar. 20.....	53	42	11	61	47	14	48	38	10	42	30	12				
Apr. 3.....	55	45	10	56	48	8	49	38	11	38	30	8				
Apr. 17.....	58	45	13	54	47	7	46	37	9	36	28	8				
May 1.....	61	46	15	62	50	12	48	37	11	38	28	10				
May 15.....	64	50	14	65	53	12	48	36	12	38	29	9				
May 29.....	62	50	12	—	51	—	45	36	9	39	28	11				
June 12.....	60	45	14	60	47	13	43	34	9	36	28	8				
June 26.....	55	43	12	64	45	19	45	34	11	41	28	13				
July 10.....	56	40	16	50	43	7	44	34	10	43	28	15				
July 24.....	56	44	12	64	43	21	40	34	6	38	28	10				

— Indicates none carried that week.  
Source of data: Prices paid from daily market news service reports, U. S. Production and Marketing Administration, Los Angeles office.

**Table 37. Weekly Average Frozen Chicken Prices Received\* and Paid† and Gross Margin, by Classes, in Independent Supermarkets**

All grades, Los Angeles market, every other week, December, 1949-August, 1950

Week beginning	Fryers			Roasters			Hens		
	Received	Paid	Margin	Received	Paid	Margin	Received	Paid	Margin
Nov. 7	cents 86	cents —	cents —	cents 27	cents —	cents —	cents 81	cents —	cents —
Nov. 28	87	60	27	—	—	—	86	68	18
Dec. 12	87	60	27	100	64	36	83	68	15
Dec. 26	83	60	23	88	64	24	81	68	13
Jan. 8	82	58	24	88	61	27	79	68	11
Jan. 23	81	58	23	81	62	19	76	72	14
Feb. 6	80	59	20	80	62	18	73	62	11
Feb. 20	80	62	18	79	66	13	74	62	12
Mar. 6	82	66	16	78	69	9	80	62	18
Mar. 20	81	68	13	79	71	8	73	62	11
Apr. 3	83	68	15	83	71	12	73	62	11
Apr. 17	84	66	18	84	69	15	74	62	12
May 1	85	66	19	88	69	19	75	60	15
May 15	85	62	23	89	66	23	77	60	17
May 29	85	62	23	89	66	23	76	60	16
June 12	85	62	23	97	66	31	73	60	13
June 26	83	61	22	97	65	32	77	60	17
July 10	83	62	21	91	66	25	82	59	23
July 24	86	69	17	87	72	15	74	62	12
Aug. 7	—	—	—	71	—	—	74	—	—

\* Price received is average of all brands carried.

† Price paid is price charged by a typical prominent brand of frozen fryers, roasters, and hens.

— Indicates none carried that week.

Table 38. Frequency of Various Actual Retail Prices and Estimated "Critical" Prices for Major Classes of

## Fresh Chicken Meat

## Los Angeles market, selected weeks, \* 1950

Dressed	45	1	43	1	45	1	55	2	59	1	9	49	9	..
dry-packed	49	2	49	2	49	5	57	1	60	1	..	55	8	..
fryers	55	2	50	..	53	1	58	1	65	1	1	59	7	7
	59	..	53	1	54	1	60	2	75	1	..			
	69	..	54	1	55	1	60	..	70	1	..			
			55	3	57	1	57	..						
			59	2	58	1	59	4						
			75	2	69	1	69	2						
				..	71	1	71	..						
					75	..	75	2						
Dressed	55	1	63	1	58	1	55	1	59	3	1	59	6	..
caponette	69	..	69	..	59	3	59	3	65	..	2	69	..	5
fryers			75	..	60	1	65	1	70	..	2	75	4	..
					63	1	63	1	65	1	1			
					65	1	69	..	70	..	2			
					69	..	75	4	75	1	1			
					75	..	79	..	79	..	1			
Ready-to-cook	69	6	53	1	69	1	58	1	59	1	..	80	..	2
fryers	72	1	63	1	75	1	59	1	75	2	1	75	7	..
	73	1	65	1	79	2	75	1	79	1	1	79	7	7
	74	1	68	1	80	1	80	1	89	1	1			
	75	1	69	1	85	1	85	1	89	1	..			
	79	3	71	1	71	1	71	..	79	1	..			
	83	3	73	1	73	1	73	..	79	1	..			
	85	1	75	3	75	3	75	..	85	..	2			
	89	..	79	1	79	1	79	..						

\* The weeks of February 6-12 and March 20-25, 1950, were typical weeks and were used to get actual prices. The week May 29-June 3, 1950, was used to obtain "critical" prices.

**Table 39. Weekly Average Retail Prices, Dressed Equivalent,\* for Live, Dressed, and Cut-up Chicken**

Los Angeles market, every other week, November, 1949–September, 1950

Week beginning	Weekly average price, per pound dressed equivalent								
	Fryers			Heavy hens			Light hens		
	Cut-up	Dressed	Live	Cut-up	Dressed	Live	Dressed	Live	
cents	cents	cents	cents	cents	cents	cents	cents	cents	
Nov. 28.....	57	61	58	53	54	50	38	41	
Dec. 12.....	60	60	—	55	53	—	37	—	
Dec. 26.....	58	63	55	50	51	50	43	37	
Jan. 9.....	56	61	54	51	51	48	—	36	
Jan. 23.....	54	60	52	40	51	48	36	39	
Feb. 6.....	55	58	53	51	48	46	38	37	
Feb. 20.....	58	58	55	50	48	50	39	41	
Mar. 6.....	56	60	57	51	50	49	43	38	
Mar. 20.....	58	61	55	48	50	50	41	40	
Apr. 3.....	59	64	58	53	52	51	43	41	
Apr. 17.....	60	63	58	51	51	50	43	40	
May 1.....	61	64	—	51	49	—	41	—	
May 15.....	63	67	63	51	51	49	40	39	
May 29.....	63	67	—	49	50	—	41	—	
June 12.....	62	64	59	53	48	50	39	36	
June 26.....	62	61	—	51	48	—	39	—	
July 10.....	60	60	56	47	49	48	41	36	
July 24.....	61	61	—	51	48	—	39	—	
Aug. 7.....	60	62	57	50	52	48	43	40	
Aug. 21.....	61	63	57	51	50	51	42	43	

\* Price quotations for the cut-up form of chicken multiplied by 0.76 for fryers and 0.80 for hens, and quotations for live form multiplied by 1.14 for fryers and hens to convert to their dressed equivalent price.

— Indicates this item not available that week.

**Table 40. Average Weekly Retail Buying and Selling Prices for Fresh Chicken Meat by Classes**

Los Angeles market, every other week, December, 1949–October, 1950

Week beginning	Weekly average price per pound for:							
	Fryers		Roasters		Heavy hens		Light hens	
	Buying	Selling	Buying	Selling	Buying	Selling	Buying	Selling
cents	cents	cents	cents	cents	cents	cents	cents	cents
Dec. 12.....	42	57	43	66	38	54	29	37
Dec. 26.....	41	66	43	59	38	50	28	42
Jan. 9.....	39	58	42	62	36	51	24	33
Jan. 23.....	39	57	40	60	35	50	23	35
Feb. 6.....	40	57	41	61	36	47	27	36
Feb. 20.....	42	58	43	62	36	48	28	38
Mar. 6.....	43	59	44	64	36	50	29	40
Mar. 20.....	46	58	47	63	38	50	30	42
Apr. 7.....	47	60	48	62	38	52	30	42
Apr. 21.....	47	63	47	63	37	49	28	40
May 1.....	48	62	50	64	37	49	28	39
May 15.....	53	65	53	69	36	50	29	39
May 29.....	50	64	51	71	36	50	28	39
June 12.....	45	62	47	67	34	48	28	39
June 26.....	43	58	45	68	34	48	28	39
July 10.....	42	58	43	64	34	48	28	40
July 24.....	42	58	43	69	34	48	28	39
Aug. 7.....	44	60	45	61	38	51	34	42
Aug. 21.....	45	61	46	66	38	50	34	41
Sept. 4.....	45	58	46	66	38	51	33	42
Sept. 18.....	45	60	46	67	38	50	31	44
Oct. 2.....	45	59	46	67	38	53	30	41
Oct. 16.....	42	58	43	65	38	51	30	42
Oct. 30.....	42	60	43	60	38	53	30	43

Source of data: Buying prices from daily market news service reports, U. S. Production and Marketing Administration, Los Angeles office.

**Table 41. Weekly Average Retail Fresh-Chicken Prices and Their Standard Deviations by Grade for Major Classes**  
 Los Angeles market, every other week, November, 1949–November, 1950

Week beginning	Weekly average retail price per pound for:							
	Fryers				Heavy hens, dressed equivalent			
	Dressed	Grade A	Grade B	Ready-to-cook	Grade A	Grade B	Grade A	Grade B
	cents	cents	cents	cents	cents	cents	cents	cents
Nov. 28	61±9	60±8	77±8	77±8	54±7	49±8	38±4	45±10
Dec. 12	59±8	60±8	78±8	80±*	53±8	44±8	37±4	35±*
Dec. 26	62±6	56±8	76±7	57±*	51±8	55±*	44±8	41±5
Jan. 8	61±8	47±7	75±8	—	51±6	52±9	37±5	33±7
Jan. 23	60±7	53±8	71±11	62±*	48±9	48±8	36±3	33±3
Feb. 6	58±7	54±10	73±5	—	49±8	45±7	39±4	34±4
Feb. 20	58±6	57±7	77±5	60±14	48±6	46±2	36±2	41±4
Mar. 6	60±7	56±8	74±7	66±*	50±7	47±5	43±3	37±4
Mar. 20	61±9	50±8	76±6	66±*	50±5	44±*	42±4	41±4
Apr. 3	64±8	53±6	78±5	69±*	52±6	47±*	43±4	39±*
Apr. 17	63±8	58±6	79±6	79±5	51±10	44±6	43±5	37±5
May 1	64±5	58±7	80±4	74±*	49±7	43±1	41±4	38±4
May 15	67±6	61±8	83±7	79±*	51±7	46±10	41±3	37±3
May 29	67±6	57±10	82±5	79±*	50±7	51±*	41±5	36±3
June 12	64±10	49±6	81±6	80±*	49±8	44±*	38±5	38±2
June 26	62±9	54±9	80±7	77±4	48±8	48±*	39±7	41±4
July 10	60±7	55±11	79±8	69±*	48±7	38±*	41±3	41±5
July 24	61±7	52±8	80±4	70±8	49±8	45±4	40±3	37±2
Aug. 7	62±8	54±8	79±5	74±*	51±6	46±3	43±7	42±5
Aug. 21	63±6	55±6	80±6	74±*	50±9	47±6	42±3	41±3
Sept. 4	62±7	56±11	80±7	—	51±7	44±4	45±4	38±3
Sept. 18	63±8	56±7	80±5	68±10	52±6	49±4	47±10	41±4
Oct. 2	65±7	54±7	79±6	67±10	52±6	44*	46±3	38±4
Oct. 16	62±7	50±7	80±6	72±*	53±7	45±6	47±2	40±5
Oct. 30	62±8	55±5	77±7	67±*	53±7	51±5	43±4	43±4

\* Three items or less, therefore no deviation was calculated.

† Used to express the range of prices found for each item in different stores—the average price plus the standard deviation to the average minus the standard deviation. This range includes two thirds of all the prices collected that week for that item. The other third collected are outside this range.

‡ Prices for grade C chicken were collected but not recorded here. Only about 2 or 3 per cent of all fresh chickens produced in Los Angeles area fall in the grade C.

— Indicates none carried that week.

**Table 42. Weekly Average Retail Prices for Frozen Cut-up Chicken by Classes and Brands**

Los Angeles market, every other week, November, 1949–November, 1950

Week beginning	Fryers						Hens						Roasters								
	Brand A			Brand B			Brand C			All others †			Brand A			Brand B			Brand C		
	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents	
Nov. 28	83±5	86±10	83±7	80±8	80±8	82±6	86±8	72±2	96±11	—	—	89±9	—	—	—	—	—	—	—	—	
Dec. 12	81±12	85±17	83±6	79±7	76±9	85±3	76±4	69±4	92±13	—	—	88±8	—	—	—	—	—	—	80±9	—	
Dec. 26	81±1	83±8	82±5	79±6	76±6	79±5	80±0	68±4	94±16	—	—	85±4	—	—	—	—	—	—	58±26	—	
Jan. 8	80±9	82±6	80±7	78±5	76±10	76±5	85±*	66±5	94±16	—	—	80±8	—	—	—	—	—	—	75±*	—	
Jan. 22	81±7	80±7	79±5	79±6	76±10	77±7	64±*	68±5	83±3	—	—	85±6	—	—	—	—	—	—	80±*	—	
Feb. 6	80±7	79±6	78±5	75±6	76±10	74±3	72±*	65±4	82±5	—	—	83±8	—	—	—	—	—	—	—	—	
Feb. 20	79±6	81±5	80±6	77±7	76±10	77±7	72±*	65±4	—	—	—	—	—	—	—	—	—	—	81±7	—	
Mar. 6	81±4	81±5	81±5	80±8	79±9	79±6	87±*	71±5	85±*	—	—	82±11	—	—	—	—	—	—	—	—	
Mar. 20	82±5	82±5	81±5	79±7	78±8	78±4	88±*	67±4	—	—	—	—	—	—	—	—	—	—	85±9	—	
Apr. 13	83±8	85±4	84±4	80±6	80±6	77±5	97±*	68±6	84±*	—	—	84±11	—	—	—	—	—	—	—	—	
Apr. 17	84±5	84±5	84±6	81±8	78±6	78±4	98±*	67±4	84±*	—	—	83±2	—	—	—	—	—	—	—	—	
May 1	83±8	84±6	84±5	80±6	78±9	77±4	86±9	68±7	97±*	85±*	—	86±6	—	—	—	—	—	—	—	—	
May 15	84±6	84±5	83±6	80±8	78±9	81±6	89±*	67±6	89±*	85±*	—	85±7	—	—	—	—	—	—	69±*	—	
May 29	84±7	84±7	82±7	79±5	79±9	78±10	78±7	88±*	64±5	97±*	88±*	—	84±3	—	—	—	—	—	69±*	—	
June 12	85±6	85±5	83±6	79±6	79±6	79±10	80±3	96±*	65±7	97±*	88±*	—	84±1	—	—	—	—	—	69±*	—	
June 26	85±6	82±6	82±6	76±8	82±9	78±2	96±*	64±7	97±*	88±*	—	84±2	—	—	—	—	—	—	69±*	—	
July 10	86±5	83±6	82±6	79±9	83±9	78±3	87±*	75±10	97±*	79±*	—	87±*	—	—	—	—	—	—	69±*	—	
July 24	86±6	87±6	87±6	82±8	78±4	80±4	84±*	69±4	86±5	87±*	—	93±*	—	—	—	—	—	—	73±*	—	
Aug. 7	89±5	88±5	90±10	85±7	81±4	79±3	80±*	71±4	79±*	87±*	—	92±*	—	—	—	—	—	—	—	—	
Aug. 21	88±6	90±4	90±4	86±7	79±4	76±4	95±*	74±8	—	87±*	—	104±*	—	—	—	—	—	—	79±*	—	
Sept. 4	90±6	90±5	90±6	87±7	80±5	81±7	80±*	74±7	—	—	88±*	86±5	—	—	—	—	—	—	79±*	—	
Sept. 18	90±6	90±3	98±6	83±8	79±4	81±6	80±*	76±6	—	86±*	89±6	—	—	—	—	—	—	79±*	—		
Oct. 2	89±6	90±5	89±6	85±7	82±7	81±6	95±*	70±8	—	87±*	100±*	—	—	—	—	—	—	79±*	—		
Oct. 16	88±7	86±9	86±7	84±7	84±12	81±6	87±*	69±7	85±*	113±*	89±*	—	75±*	—	—	—	—	—	75±*	—	
Oct. 30	88±7	87±6	86±8	80±8	85±11	84±11	78±*	73±6	83±*	86±*	89±*	—	75±*	—	—	—	—	—	75±*	—	

\* Three items or less, therefore no deviation was calculated.

† The 3 brands sold in largest volume and appearing most widely in retail stores are Ocoma, Birdseye, and Swanson. These 3 are listed separately as Brands A, B and C, but not in respective order. Brands have a more limited distribution and lower sales in Los Angeles are listed under "other." Some of these are Manor House, Swift, Armour, Cudahy, Snow Crop, etc.

Table 43. Weekly Average and Range in Chicken-Meat Sales by Classes and Forms and Size and Type of Store

Selected stores, Los Angeles market, every other week, November, 1949–November, 1950

Class and form of chicken		Range and average in numbers of chickens sold in:							
		Supermarket chains		Supermarket independents		A-size independents		B-size independents	
		Store no. 4	Store no. 9	Store no. 13	Store no. 20	Store no. 12	Store no. 26	Store no. 38	Store no. 45
<b>FRESH CHICKEN</b>									
Dry-packed:									
Fryers	Range	50-210	.....	36-84	.....	48-80	20-240	5-30	.....
	Average	103	.....	57	.....	64	92	12	.....
Roasters	Range	15-75	.....	.....	.....	20-36	.....	.....	.....
	Average	50	.....	.....	.....	25	.....	.....	.....
Heavy hens	Range	25-225	.....	10-54	.....	12-30	.....	2-6	.....
	Average	76	.....	28	.....	16	.....	4	.....
Light hens	Range	75-300	.....	.....	.....	12-200	.....	.....	.....
	Average	166	.....	.....	.....	64	.....	.....	.....
Ready-to-cook:									
Fryers	Range	5-41	24-96	35-100	.....	.....	.....	.....	15-21
	Average	24	46	73	.....	.....	.....	.....	20
Roasters	Range	1-30	.....	8-80	.....	.....	.....	.....	.....
	Average	8	.....	21	.....	.....	.....	.....	.....
Hens	Range	2-24	5-72	10-40	.....	.....	.....	.....	3-5
	Average	10	21	29	.....	.....	.....	.....	4

Table 43, continued

**Table 44. Total Weekly Retail Food Store Sales of Chicken Meat by Classes and Forms**

Los Angeles market, every other week, November, 1949–October, 1950

Week beginning	Total weekly sales, dressed-equivalent weight						Grand total			
	Fresh chicken			Frozen chicken						
	Fryers	Roasters	Heavy hens	Light hens	Total	Fryers	Roasters	Hens	Total	
	1,000 lbs.	1,000 lbs.	1,000 lbs.	1,000 lbs.	1,000 lbs.	1,000 lbs.	1,000 lbs.	1,000 lbs.	1,000 lbs.	1,000 lbs.
Nov. 28.....	221	35	100	70	426	153	5	23	181	607
Dec. 12.....	213	23	127	71	434	132	26	31	189	623
Dec. 26.....	223	66	128	79	496	150	15	34	199	695
Jan. 8.....	242	48	84	144	518	151	4	26	181	699
Jan. 23.....	260	44	112	214	630	134	9	24	167	797
Feb. 6.....	246	85	113	124	568	132	8	22	162	730
Feb. 20.....	240	33	105	56	434	137	1	16	154	588
Mar. 6.....	214	33	105	53	405	129	3	18	150	555
Mar. 20.....	238	31	109	54	432	140	11	19	170	602
Apr. 3.....	237	41	98	46	422	129	5	24	158	580
Apr. 17.....	192	25	104	72	393	157	5	34	196	589
May 1.....	221	27	147	70	465	149	9	34	192	657
May 15.....	205	23	149	74	451	187	15	29	231	682
May 29.....	205	21	130	100	456	157	15	18	190	646
June 12.....	209	65	122	93	489	138	8	25	171	660
June 26.....	228	22	112	89	451	230	8	23	261	712
July 10.....	252	44	144	42	482	230	4	28	262	744
July 24.....	246	24	118	50	438	186	14	24	224	662
Aug. 7.....	246	17	76	56	395	165	11	25	201	596
Aug. 21.....	230	27	94	47	398	168	11	23	202	600
Sept. 4.....	245	28	80	64	417	192	13	26	231	648
Sept. 18.....	240	30	130	73	473	216	13	19	248	721
Oct. 2.....	252	34	80	76	442	171	13	23	207	649

Table 45. Total Weekly Fryer Sales, Fresh and Frozen, by Type of Store

Los Angeles market, every other week, November, 1949–November, 1950

Week beginning:	Fresh fryer sales, dressed equivalent weight					Frozen fryer sales, dressed equivalent weight						
	Supermarket chain	Supermarket independent		A-size independent	B-size independent	C-size independent	Supermarket chain	Supermarket independent		A-size chain	B-size independent	C-size independent
		1,000 lbs.	1,000 lbs.					1,000 lbs.	1,000 lbs.			
Nov. 28.....	39	50	36	29	67	25	38	21	15	12	41	
Dec. 12.....	46	30	27	51	60	20	32	4	21	22	36	
Dec. 26.....	51	35	37	43	56	28	32	33	17	9	30	
Jan. 8.....	38	63	42	34	63	33	30	21	17	15	34	
Jan. 23.....	52	60	43	39	66	32	36	21	15	13	17	
Feb. 6.....	38	52	51	37	26	33	36	22	17	11	16	
Feb. 20.....	47	42	62	35	54	32	28	22	21	16	18	
Mar. 6.....	44	43	37	33	58	26	32	22	20	12	20	
Mar. 20.....	52	67	33	33	54	26	33	26	17	11	26	
Apr. 3.....	52	51	33	40	61	26	28	22	18	12	24	
Apr. 17.....	43	40	28	33	48	33	38	30	17	15	25	
May 1.....	37	54	47	34	50	36	28	22	21	12	30	
May 15.....	37	39	41	37	51	42	54	26	21	15	29	
May 29.....	43	37	38	35	53	43	34	30	18	15	17	
June 12.....	47	49	36	39	38	29	34	26	21	12	17	
June 26.....	50	60	44	41	33	54	79	30	24	17	28	
July 10.....	60	60	47	45	41	51	75	26	29	17	34	
July 24.....	48	52	43	36	67	47	33	30	25	12	37	
Aug. 7.....	43	69	46	37	52	34	33	29	22	11	36	
Aug. 21.....	55	48	34	35	58	38	38	29	22	13	26	
Sept. 9.....	49	64	39	34	59	49	46	29	22	13	33	
Sept. 18.....	48	45	38	49	60	50	85	29	24	11	17	
Oct. 2.....	55	45	40	33	58	51	58	29	24	13	21	

**Table 46. Weekly Average Retail Price for U. S. Grade A Chicken Meat,  
Fresh and Frozen, by Class and Brand\***

Los Angeles market, every other week, December, 1949–July, 1950

Week beginning	Weekly average price per pound, dressed-equivalent weight†									
	Fryers			Roasters			Heavy hens			
	Fresh	Frozen		Fresh	Frozen		Fresh	Frozen		
		Brand X	Brand Y		Brand X	Brand Y		Brand X	Brand Y	
Nov. 28.....	cents	cents	cents	cents	cents	cents	cents	cents	cents	cents
Dec. 12.....	61	63	49	—	77	—	54	63	50	50
Dec. 26.....	60	62	52	—	75	58	51	61	52	52
Jan. 8.....	59	61	49	—	75	—	51	60	52	52
Jan. 23.....	57	62	49	59	66	—	48	61	50	50
Feb. 6.....	57	61	49	61	66	—	49	61	55	55
Feb. 20.....	59	60	49	63	—	—	48	61	50	50
Mar. 6.....	58	62	52	64	68	—	50	63	54	54
Mar. 20.....	59	62	52	63	—	—	50	62	54	54
Apr. 3.....	62	63	52	65	67	—	52	64	50	50
Apr. 21.....	61	64	52	63	67	—	51	62	54	54
May 1.....	62	63	52	64	78	52	49	62	52	52
May 15.....	65	64	52	69	71	52	51	62	52	52
May 29.....	65	64	52	71	78	52	50	62	50	50
June 12.....	63	65	52	67	78	52	49	62	50	50
June 26.....	61	65	49	68	78	52	48	66	50	50
July 10.....	60	65	52	62	78	52	48	66	47	47
July 24.....	61	65	52	68	68	58	49	62	50	50

\* Brands X and Y are nationally distributed and advertised products.

† Cut-up chickens both fresh and frozen converted to dressed equivalent by multiplying cut-up prices by the following factors: for fryers—0.76; for hens—0.80; for roasters 0.80.

— Indicates none carried that week.

**Table 47. Average Retail Prices for Chicken Meat, by Classes, in Different Rental Areas**

Los Angeles market, selected weeks, 1950

Class of chicken	Average retail price per pound in:		
	High rental area	Medium rental area	Low rental area
Fresh dressed:	cents	cents	cents
Fryers.....	64	59	57
Heavy hens.....	54	47	47
Light hens.....	38	40	39
Fresh cut-up fryers.....	83	78	75
Frozen cut-up fryers.....	84	83	86



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